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Tables, which should also be numbered, *should appear in the typescript*. Metric units should be used. If non-metric units were used in the original observation or experiment, the approximate metric equivalent should be given in brackets.

Any references cited should be listed at the end of the contribution following the form used in this issue. *Names of periodicals should be given in full.* A number of works, which are cited frequently, should not be listed under

Continued inside back cover

SCOPUS

BIRD RINGING IN AN ADDIS ABABA GARDEN

Stephanie Tyler

INTRODUCTION

Between 27 October 1973 and 29 December 1975 I carried out a ringing programme in a garden near the southwestern edge of Addis Ababa, Ethiopia (9°00'N., 38°44'E.). Much is known about the occurrence of birds within the city (Pain, Tyler & Vittery 1975) but this ringing programme was confined to determining the relative abundance and possible seasonal distribution of some garden birds.

Addis Ababa lies on the Ethiopian plateau between 2400 and 2700 m. Surrounding the city are a series of straggling shanty villages interspersed with modern houses and gardens, streams rivers and patches of open grassland. Gums *Eucalyptus* spp. are the most conspicuous trees but indigenous *Juniperus procera* and *ziziba Podocarpus gracilior* also occur, particularly in the higher northern part of the city. Acacia trees, notably *Acacia negrei*, are common along rivers and in some gardens; a remnant of acacia woodland occurs on the western edge of the city, beyond which lies rolling grassland, fields of the cereal teff *Eragrostis teff* and the oil crop noug *Guizotia abyssinica*, *Eucalyptus* plantations and small patches of scrubby woodland. My garden at 2450 m was a rectangle, 60 x 35 m; it had a large area of lawn with flower beds and shrubs and was surrounded by a fringe of indigenous trees (tidh, kosso *Hagenia abyssinica*, birbirra *Milletia ferruginea*, grawwa *Veronia amygdallina*) and exotics (*Cupressus*, *Pinus*, *Casuarina*). Some plants were of great importance in attracting various species of birds: Australian *Fuschsia* and the firebush *Streptosolon jamesonii* when in flower, attracted sunbirds while a bramble *Rubus* sp., when in fruit, attracted bulbuls and mousebirds¹.

There are obvious limitations in the use of netting figures to draw conclusions about relative abundance, particularly between different species. Many birds will not be caught because of their aerial or skulking habits or because of remarkable eyesight, whilst other species escape easily from mist nets. Account must also be taken of such variable factors as the number of hours and times of day spent netting, positioning and length of the nets used, and the weather. Birds were most active at dawn and dusk so that netting during the middle part of the day was relatively unproductive.

Netting effort was evenly distributed over the period 08:30 - 18:30. One to five, but usually three, nets (2 x 40 feet and 1 x 60 feet = c. 12 and c. 18 m respectively) were used. Despite the many drawbacks of such a

¹ scientific names of birds are given in Table 1

study the results allow comparison, for example, of the relative seasonal abundance of the two common seed-eaters or of the two species of sunbird found in Addis. The results given here may differ from those obtained from other gardens in the city at a different altitude or with different habitats. Dr E.K. Urban and Dr R.W. Ashford have netted in Addis gardens at c.2600 m and their results are referred to in this paper.

NUMBERS OF BIRDS RINGED

A total of 1180 birds of 50 species was ringed (Table 1). Wing-length (maximum flattened chord) and weight were recorded of many of these and are given in Appendix 1. Monthly totals were highest from October to December 1973. Birds were then unused to nets and so were more easily caught. The garden had been unoccupied for a time and weed species flourished, so providing food for seed-eating birds. During 1974 and 1975 the garden became less attractive to some birds as the weeds and other plants were eaten by two bushbucks *Tragelaphus scriptus* and four tortoises *Testudo* sp. As the older residents became wary of the nets, new birds caught tended to be young or birds from passing flocks or migrants.

Table 2 shows the number of birds caught each month when 1974 and 1975 data are combined. The results are expressed as the number of birds caught per 10 h of netting. December shows the lowest figure but little time was spent netting then although netting in December 1973 had been productive. May too was unproductive; Palaearctic migrants had then gone; there were no nearby roosts and few birds were then in flocks because many were breeding following the short rains of March and April.

COMPARISON OF TOTALS OF DIFFERENT SPECIES

From Table 1 it can be seen that the Baglafaecht Weaver was the most often ringed species followed closely by Swainson's Sparrow and Blue-eared Glossy Starling. Tacazze Sunbird, Brown-rumped Seed-eater and Red-billed Firefinch were also commonly caught. Dusky Turtle Doves would have rated higher but for their tendency to escape from nets. However, they were much more commonly caught than Red-eyed Doves and the ringing ratio of 12:1 probably reflects the two species' relative abundance.

The ratio of 2:1 for Brown-rumped v. Streaky Seedeater can be usefully compared because there was no obvious difference in the 'catchability' of the two species. The totals of Ashford and Urban also show the same tendency but their ratio for these two species was far in excess of 2:1 (see Table 3).

The large total of Tacazze Sunbirds was perhaps surprising as, without ringing, it is easy to assume that it is only the same one or two birds which visit the garden each day. Tacazze Sunbirds were much commoner than the smaller Variable Sunbird of which only 19 were ringed. Ashford's and Urban's data are similar to mine for these species (Table 3).

Of the five resident thrushes found in the garden, Olive Thrushes were most frequently ringed. The Ground-scraper Thrush is a bird of open grass-land so it is not surprising that few were caught. Similarly Hill Chats favour rocky, open ground and higher altitudes; they are thus more abundant in the northern part of the city than in the southwest and Ashford caught more Hill Chats there than Robin Chats. Urban ringed almost twice as many Olive Thrushes as Robin Chats, cf. my ratio of 2.5:1. Both these species bred in or close to my garden but White-winged Cliff Chats were only occasional visitors, as were the Hill Chats and Ground-scrappers. The three Cliff Chats ringed were all from one family group.

TABLE 1 Total numbers of each species of bird ringed in the garden between 27 October 1973 and 29 December 1975. Palaearctic migrants are marked * (month of ringing in parentheses)

| SPECIES | No. ringed |
|--|------------|
| Dusky Turtle Dove <i>Streptopelia lugens</i> | 83 |
| Red-eyed Dove <i>S. semitorquata</i> | 7 |
| *Hoopoe <i>Upupa epops</i> (Oct) | 1 |
| Speckled Mousebird <i>Colius striatus</i> | 3 |
| Grey Woodpecker <i>Mesopiceus goertae</i> | 1 |
| *Wryneck <i>Jynx torquilla</i> (Sep 2, Nov 1) | 3 |
| *Eurasian Swallow <i>Hirundo rustica</i> (Mar) | 1 |
| Red-rumped Swallow <i>H. daurica</i> | 1 |
| *Yellow Wagtail <i>Motacilla flava</i> (Dec, Mar) | 2 |
| *Tree Pipit <i>Anthus trivialis</i> (Apr) | 2 |
| Bulbul <i>Pycnonotus barbatus</i> | 5 |
| Tropical Boubou <i>Laniarius ferrugineus</i> | 1 |
| *Red-backed Shrike <i>Lanius collurio</i> (Nov) | 1 |
| Fiscal <i>L. collaris</i> | 8 |
| *Pied Wheatear <i>Oenanthe pleschanka</i> (Oct 2, Nov 2, Dec 2, Mar 4) | 10 |
| Hill Chat <i>Cercoma sordida</i> | 5 |
| White-winged Cliff Chat <i>Myrmecocichla semirufa</i> | 3 |
| *Redstart <i>Phoenicurus phoenicurus</i> (Oct 3, Jan 1, Mar 2, Apr 5) | 11 |
| Rüppell's Robin Chat <i>Cossypha semirufa</i> | 11 |
| Olive Thrush <i>Turdus abyssinicus</i> | 29 |
| Ground-scraper Thrush <i>T. litsipsirupa</i> | 6 |
| Cinnamon Bracken Warbler <i>Bradypterus cinnamomeus</i> | 1 |
| *Marsh Warbler <i>Acrocephalus palustris</i> (Aug, Sep) | 2 |
| *Garden Warbler <i>Sylvia borin</i> (Aug, Apr) | 2 |
| *Blackcap <i>S. atricapilla</i> (Oct 1, Nov 3, Apr 3) | 7 |
| *Whitethroat <i>S. communis</i> (Aug 3, Nov 1, Apr 1) | 5 |
| *Lesser Whitethroat <i>S. curruca</i> (Mar) | 1 |
| *Willow Warbler <i>Phylloscopus trochilus</i> (Oct 1, Nov 3, Apr 3) | 7 |
| *Chiffchaff <i>P. collybita</i> (Nov 2, Dec 3, Jan 1, Feb 2, Mar 4) | 12 |
| Winding Cisticola <i>Cisticola galactotes</i> | 16 |
| Tawny-flanked Prinia <i>Prinia subflava</i> | 12 |
| Brown Parisoma <i>Parisoma lugens</i> | 4 |
| *Spotted Flycatcher <i>Muscicapa striata</i> (Oct 3, Apr 2, May 1) | 6 |
| White-eyed Slaty Flycatcher <i>Melaenornis chocolatina</i> | 16 |
| White-backed Black Tit <i>Parus leucanotus</i> | 1 |
| Variable Sunbird <i>Nectarinia venusta</i> | 19 |
| Tacazze Sunbird <i>N. tacazze</i> | 108 |
| Green White-eye <i>Zosterops poliogaster</i> | 15 |
| *Ortolan <i>Emberiza hortulana</i> (Apr) | 2 |
| African Citril <i>Serinus citrinelloides</i> | 32 |
| Streaky Seed-eater <i>S. striolatus</i> | 46 |
| Brown-rumped Seed-eater <i>S. tristriatus</i> | 93 |
| Purple Indigo Bird <i>Hypochera chalybeata</i> | 35 |
| Yellow-bellied Waxbill <i>Estrilda melanotis</i> | 1 |
| Waxbill <i>E. astrild</i> | 2 |
| Red-billed Firefinch <i>Lagonosticta senegala</i> | 93 |
| Baglafaecht Weaver <i>Ploceus baglafaecht</i> | 156 |
| Red-billed Quelea <i>Quelea quelea</i> | 2 |
| Swainson's Sparrow <i>Passer swainsonii</i> | 149 |
| Blue-eared Glossy Starling <i>Lamprolornis chalybaeus</i> | 140 |

One of the chief interests of a ringing programme is that some species that could pass through an area unobserved will be netted and so recorded. Several species are on the Addis Ababa checklist solely from records of birds caught in mist nets, for example Red-backed Shrike and Marsh Warbler.

Seventeen Palaearctic species were ringed in the garden (see Table 1). Many of these were presumed to be on passage with Marsh and Garden Warblers and Whitethroats caught only in late August and September (and the two *Sylvia* spp. again in April), while Pied Wheatears, Chiffchaffs and Yellow Wagtails overwintered in the city. Chiffchaffs and Blackcaps fed on aphids

TABLE 2

Number of hours spent ringing each month and numbers of new birds and of retraps (birds ringed in a previous month) of 12 species for each month when data for 1974 and 1975 are combined. Numbers of new birds and of the total catch are estimated for 10 h mist-netting each month

| | Oct-Dec 1973 | J | F | M | A | M | J | J | A | S | O | N | D | Totals |
|---------------------------------|--------------|----|----|-----|-----|-----|-----|-----|----|-----|-----|-----|----|--------|
| h of netting | 203 | 70 | 98 | 178 | 193 | 132 | 125 | 140 | 58 | 106 | 242 | 121 | 37 | 1703 |
| No. of 12 spp. | | | | | | | | | | | | | | |
| Dusky Turtle Dove | 19 | 3 | 7 | 6 | 12 | 2 | 7 | 5 | 3 | 4 | 8 | 6 | 1 | 83 |
| Olive Thrush | 6 | 1 | 2 | 2 | 6 | 5 | 3 | 1 | 0 | 0 | 2 | 1 | 0 | 29 |
| Variable Sunbird | 0 | 0 | 0 | 1 | 5 | 2 | 7 | 3 | 0 | 1 | 0 | 0 | 0 | 19 |
| Tacazze Sunbird | 8 | 3 | 9 | 22 | 10 | 3 | 5 | 13 | 6 | 14 | 11 | 3 | 1 | 108 |
| African Citril | 12 | 0 | 0 | 1 | 1 | 4 | 5 | 5 | 2 | 0 | 2 | 0 | 0 | 32 |
| Streaky Seed-eater | 16 | 0 | 0 | 5 | 2 | 7 | 4 | 6 | 0 | 0 | 5 | 1 | 0 | 46 |
| Brown-r. S.-eater | 29 | 4 | 3 | 13 | 8 | 3 | 4 | 7 | 2 | 6 | 7 | 7 | 0 | 93 |
| Purple Indigobird | 1 | 0 | 1 | 0 | 4 | 0 | 2 | 12 | 1 | 5 | 8 | 1 | 0 | 35 |
| Red-b. Firefinch | 4 | 4 | 3 | 6 | 9 | 7 | 17 | 14 | 12 | 9 | 5 | 3 | 0 | 93 |
| Baglafaecht Weaver | 90 | 4 | 4 | 9 | 4 | 16 | 5 | 5 | 4 | 5 | 6 | 4 | 1 | 156 |
| Swainson's Sparrow | 23 | 1 | 10 | 20 | 23 | 9 | 6 | 8 | 3 | 18 | 12 | 14 | 2 | 149 |
| Blue-e. G. Starling | 53 | 12 | 17 | 1 | 0 | 0 | 0 | 0 | 1 | 6 | 37 | 12 | 1 | 140 |
| Total new birds | 310 | 50 | 65 | 108 | 114 | 61 | 71 | 82 | 43 | 77 | 127 | 65 | 7 | 1180 |
| New birds/10 h | 152 | 71 | 66 | 61 | 59 | 46 | 57 | 58 | 74 | 73 | 52 | 54 | 19 | 6.9 |
| Total No. retraps | 22 | 4 | 12 | 14 | 16 | 11 | 23 | 19 | 7 | 15 | 25 | 14 | 0 | 182 |
| New birds + retraps per 10 h | 163 | 77 | 78 | 68 | 67 | 54 | 75 | 72 | 86 | 86 | 63 | 65 | 19 | 8.0 |

on old *Brassica* plants in the garden in October and November. The three Wrynecks are of interest; Ash (1977) has caught them frequently in winter at lower altitudes in Ethiopia and the species is much commoner in the country than indicated by Urban & Brown (1971). One of the Addis birds presumably wintered in the city: it was first caught on 6 Nov 1973 and subsequently retrapped in late December and finally reported dead nearby in March.

SEASONAL MOVEMENTS

Table 2 shows the breakdown of catches of 12 common species for October to December 1973 and for each month thereafter. Large catches of Baglafaecht Weavers were made in November and December 1973 when flocks of weavers, with a large proportion of young birds, were feeding on grassland adjacent to the garden. These large catches in these two months account for the

TABLE 3

A comparison of the totals (expressed as the percentage of the sum total) of 17 species ringed in three gardens in Addis Ababa. Totals of the 17 species are given in parentheses

| Species | Ashford (244) | Urban (340) | Tyler (843) |
|------------------------------------|---------------|-------------|-------------|
| Dusky Turtle Dove | - | 1.5 | 9.8 |
| Abyssinian Catbird ¹ | - | 0.3 | - |
| Olive Thrush | - | 4.4 | 3.4 |
| Rüppell's Robin Chat | 0.8 | 2.1 | 1.3 |
| Hill Chat | 2.4 | 0.3 | 0.6 |
| White-eyed Slaty Flycatcher | - | 0.9 | 1.9 |
| Dusky Flycatcher ² | 0.4 | - | - |
| Tacazze Sunbird | 10.2 | 5.6 | 12.8 |
| Variable Sunbird | 0.4 | 0.3 | 2.2 |
| Yellow-crowned Canary ³ | 0.8 | 0.3 | - |
| Streaky Seedeater | 2.0 | 4.7 | 5.4 |
| Brown-rumped Seedeater | 48.8 | 36.7 | 11.0 |
| Pin-tailed Whydah ⁴ | 1.2 | 0.3 | - |
| Red-billed Firefinch | 20.9 | 3.8 | 11.0 |
| Purple Indigobird | 11.9 | - | 4.2 |
| Baglafaecht Weaver | - | 32.9 | 18.5 |
| Swainson's Sparrow | - | 5.9 | 17.7 |

¹*Parophasma galinieri*, ²*Muscicapa adusta*, ³*Serinus canicollis*, ⁴*Vidua macro-ura*

TABLE 4

Retrap data for 18 species of garden bird in Addis Ababa

| Species | Total No. caught | Retrapped No. | % | Max.No. Retraps | Max. interval* |
|-----------------------------|------------------|---------------|------|-----------------|----------------|
| Dusky Turtle Dove | 83 | 3 | 3.6 | 2 | 8 |
| Bulbul | 5 | - | - | - | - |
| Fiscal | 8 | 4 | 50.0 | 2 | 15 |
| Rüppell's Robin Chat | 11 | 2 | 18.2 | 1 | 3 |
| Olive Thrush | 29 | 8 | 36.3 | 6 | 17 |
| Winding Cisticola | 16 | 3 | 18.8 | 5 | 7 |
| Tawny-flanked Prinia | 12 | 5 | 41.6 | 1 | 21 |
| White-eyed Slaty Flycatcher | 16 | 2 | 12.5 | 2 | 2 |
| Variable Sunbird | 19 | - | - | - | - |
| Tacazze Sunbird | 108 | 8 | 7.4 | 1 | 7 |
| African Citril | 32 | 2 | 6.2 | 2 | 8 |
| Streaky Seedeater | 46 | 12 | 26.0 | 8 | 22 |
| Brown-rumped Seedeater | 93 | 15 | 16.1 | 10 | 24 |
| Red-billed Firefinch | 93 | 7 | 7.5 | 3 | 17 |
| Baglafaecht Weaver | 156 | 12 | 7.7 | 2 | 4 |
| Swainson's Sparrow | 149 | 13 | 8.7 | 5 | 11 |
| Blue-eared Glossy Starling | 140 | - | - | - | - |

* in months. The maximum number of retraps refers to the maximum number of times that any bird was retrapped, in months, after the month in which it was ringed. If a bird was retrapped several times in one month this is nevertheless counted as one retrap for that month.

species' position at the top of the totals list. Similarly, large numbers of Blue-eared Glossy Starlings were caught in December 1973 and January 1974, again in October and November 1974 and in October 1975. In these months the starlings gathered in and near the garden for an hour before dusk, when they flew up to roost in a large gumtree closeby. Up to 1000 starlings used this roost in the three successive seasons; occupation of the roost was for a short period only and then the flocks either dispersed or moved elsewhere.

Sunbird numbers also showed seasonal differences. Tacazze Sunbird ringing totals varied from one per month to as many as 17. In only one month, June 1975, was no Tacazze Sunbird caught. The main breeding season of this species is from April to August, and so the many individuals caught between February and April were probably adults moving about prior to establishing a breeding territory. Numbers caught then remained low in May and June when the sunbirds were nesting, but became higher from July to October when young birds had fledged and adults dispersed.

Between June and August 43 Red-billed Firefinches were ringed - 46.2% of the total ringed during the 26 months of the study. At this time of year the firefinches were moving about in large flocks. A possible seasonal movement is also indicated by the Brown Parisoma records: only four were caught but these were in December 1973 (2), October 1974 (1) and October 1975 (1).

RETRAP DATA

Ringling and retrap data can sometimes be used to assess the size of a population and to give an indication of survival rate and ingress (Hounsborne 1978), but mark/recapture methods cannot be used for my data because they were collected too erratically and the garden was too small in area. However, garden species of which few or none were subsequently retrapped were usually very mobile, for example Blue-eared Glossy Starling and Baglafaect Weaver. Both these species were abundant in the city and flocked in certain months. I ringed 140 starlings but retrapped none and only 12 of 156 weavers ringed were retrapped. Similarly, only 3 of 83 Dusky Turtle Doves were retrapped; this suggests that either this dove is a very mobile species, or that I had only caught a small proportion of those which visited the garden.

By contrast, resident species showed a high proportion of retraps. Thus, of the Fiscals and Olive Thrushes ringed, 50% and 36.25% respectively were retrapped, as were 5 of the 12 Tawny-flanked Prinias ringed. Twenty-six per cent. of the Streaky Seedeaters were retrapped compared with only 16% of the Brown-rumped Seedeaters and 7.5% of the Red-billed Firefinches. Again, this suggests that firefinches are more mobile or more abundant than the seedeaters or, alternatively that their mortality rate is higher. Ashford, however, had more frequent retraps amongst firefinches than amongst Brown-rumped Seedeaters and he suggested that this indicated a greater population of the seedeater than of the firefinch. The reverse was the case in my garden; though possibly at higher altitudes seedeaters are more abundant or are more mobile.

The study period was too short to produce any longevity records of note, although many birds ringed in October and November 1973 were still alive two years later. A few birds have been reported dead outside the garden but within the city; these include Tacazze Sunbird, Baglafaect Weaver and Fiscal. Dr J.S. Ash has gained many longevity data for birds in Ethiopia and Urban (1975) listed his longevity data obtained in Addis

from 1968 to 1975.

Weights of birds (to the nearest 0.5 g) are given in Appendix 1. The mean weights are similar to, but slightly greater than Urban's weights for all species for which he gave data except for the Dusky Turtle Dove and Swainson's Sparrow. His Dusky Turtle Dove mean weight is outside my recorded weight range. Wing-lengths (maximum flattened chord) are also given for 25 resident species in the Appendix.

The data in this paper are presented as an indication of work which remains to be done on population aspects of Ethiopian birds. Little is yet known of the mobility of common 'residents', of their breeding cycles and the seasonal movements they may undertake.

ACKNOWLEDGEMENTS

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Stephanie Tyler, Yew Tree Cottage, Lone Lane, Penallt, Gwent, Wales, U.K.

(Received 15 November 1978)

Appendix 1 is on p.8 overleaf

APPENDIX 1 Wing-lengths and weights of some garden birds in Addis Ababa. Wings were measured along the maximum flattened chord. Lengths in parentheses refer to a few short juvenile wing measurements, whereas mean lengths in parentheses are those means obtained when the juvenile measurements are included. The column headed 'Urban' gives the mean weights obtained by him in his garden

| Species | Wing-length (mm) | | | | Weight (g) | | | | |
|-----------------------------|------------------|----------------------|------------------|----------------|------------|-----------|-------|-------|----------------|
| | n | range | mean | S.D. | n | range | mean | S.D. | Urban |
| Dusky Turtle Dove | 46 | 165-185 (135,148) | 175.2 (173.8) | 5.12 (8.67) | 20 | 136-169 | 155.3 | 10.85 | 193.3 |
| Fiscal | 7 | 91-98 | 94.4 | 2.15 | 6 | 36-39.5 | 36.8 | 1.37 | - |
| Rüppell's Robin Chat | 9 | 75-85 | 78.9 | 3.10 | 4 | 26.5-30 | 28.0 | 1.58 | 26.9 |
| Olive Thrush | 25 | 109-122 | 115.7 | 3.98 | 15 | 60-76 | 67.3 | 4.69 | 65.9 |
| Ground-scraper Thrush | 5 | 123-137 | 131.4 | 6.43 | 5 | 68-78.5 | 74.8 | 4.31 | - |
| Winding Cisticola | 13 | 52-63 | 58.0 | 3.44 | 12 | 10.5-15 | 13.8 | 1.28 | - |
| Tawny-flanked Prinia | 10 | 48-55 | 51.3 | 2.16 | 8 | 9-11.5 | 9.9 | 0.86 | - |
| Brown Parisoma | 3 | 63-67 | 65.7 | 2.39 | 2 | 14-15.5 | 14.5 | 1.06 | - |
| White-eyed Slaty Flycatcher | 10 | 84-90 | 87.3 | 2.16 | 8 | 22-27 | 23.4 | 1.63 | 22.0 |
| Variable Sunbird | 8 | 48-53 | 50.9 | 1.61 | 5 | 6.5-7.5 | 6.9 | 0.42 | 6.8 |
| Tacazeze Sunbird | 65 | 66-83 (60) | 75.2 (75.0) | 4.56 (4.91) | 34 | 12-19 | 16.5 | 1.65 | M15.9 F13.8 |
| Green White-eye | 9 | 62-68 | 64.4 | 1.75 | 14 | 12-16 | 13.4 | 1.09 | - |
| African Citril | 28 | 66-78 | 68.9 | 2.34 | 24 | 13-17 | 15.0 | 1.07 | - |
| Streaky Seed-eater | 38 | 66-75 | 71.0 | 2.05 | 35 | 19.5-25.5 | 22.4 | 1.53 | 21.0 |
| Brown-rumped Seed-eater | 65 | 64-70 | 66.2 | 4.54 | 40 | 15-20.5 | 17.2 | 1.19 | 15.5 |
| Purple Indigobird | 8 | 61-71 | 63.2 | 3.25 | 4 | 12.5-14.5 | 13.5 | 0.82 | - |
| Red-billed Firefinch | 50 | 49-59 | 51.8 | 1.78 | 23 | 8.0-12.0 | 10.7 | 0.67 | 9.5 |
| Baglafaecht Weaver | 124 | 74-88 | 79.7 | 3.14 | 114 | 24.5-37.5 | 31.5 | 2.36 | 31.6 |
| Swainson's Sparrow | 97 | 77-94 | 85.4 | 4.37 | 64 | 25.0-41.5 | 33.9 | 2.86 | 31.6 |
| Blue-eared Glossy Starling | 112 | 131-161 | 145.8 | 7.67 | 37 | 84.0-127 | 100.5 | 11.08 | - |

HELPERS AT THE NEST IN THE WHITE-FRONTED BEE-EATER

Robert E. Hegner, Stephen T. Emlen, Natalie J. Demong & Carolyn E. Miller

Cooperative reproduction in birds is a rare but somewhat predictable phenomenon. Roughly 80 species (about 1 per cent. of all bird species) including 52 African species representing 30 families or sub-families (Grimes 1976) are known to have regular helpers. About 20 of these have been studied in detail, and these studies have indicated several trends. Cooperative species tend to be tropical or sub-tropical in distribution, sedentary (and often highly territorial), and live in somewhat arid areas. Often helpers (often called auxiliaries) are young birds from previous generations who are helping their parents, but there are many other types of social systems (for reviews see Brown 1974, Woolfenden 1976 and Emlen 1978). One group of birds in which cooperative breeding is relatively well developed is the family Meropidae, the bee-eaters.

Seventeen of the 24 species of bee-eaters live in Africa some living in forest areas, some living in savanna. Forest species tend to be solitary, savanna species tend to be colonial. Many of the savanna-dwelling bee-eaters exhibit a high degree of cooperative breeding, while at the same time being highly colonial (Fry 1972a, Emlen 1978 and in press). Most of the well studied cooperative species have a social structure where individuals roost, breed, and forage throughout the year on a single all-purpose territory. White-fronted Bee-eaters on the other hand, roost and breed colonially and disperse daily to forage, often travelling several kilometres from the colony. Bee-eaters, then, offer an opportunity to investigate the theories of cooperative breeding in an ecological context different from that of most other cooperative species.

This paper is a preliminary report of part of an on-going study of the White-fronted Bee-eater *Merops bullockoides* in the Lake Nakuru National Park, Kenya. *Merops bullockoides* is locally common throughout most of central Africa, ranging from the Zambezi River north through East Africa to central Kenya. In Kenya it is locally common in the Rift Valley. Our study site is located in an area of mixed grassland and bush punctuated with patches of riverine woodland lining the two seasonal rivers that flow into Lake Nakuru from the south. It is along these two rivers that the birds find suitable nesting areas.

Merops bullockoides is highly colonial and roosts and breeds in holes in vertical sandbanks along rivers and in other suitable areas. Breeding colonies range in size from 20 to 150 active holes, most being between 25 and 50. Breeding can occur in nearly every month, but most colonies breed between October and June. Even when not breeding, the birds remain gregarious and roost in the colonies.

White-fronted Bee-eaters feed primarily on flying insects which they capture by 'flycatching', but they also swoop down and pick insects from grass or the surface of water. Venomous Hymenoptera make up a significant portion of the diet, but they seem to take a relatively high proportion of Lepidoptera, Diptera and Orthoptera as well. Nestlings are rarely fed venomous insects. For a more general review of bee-eater biology, the reader is referred to Fry (1972b).

In Kenya, *M. bullockoides* exhibits a high degree of cooperative breeding. In addition to breeding together, members of a group (parents plus helpers) roost together and forage together throughout the year. During

breeding, helpers, which are of both sexes, assist in cleaning out old holes, incubation, feeding nestlings, and escorting and feeding fledglings. In 1977 and early 1978, the mean group size was 2.7 individuals and 49 per cent of all nests had at least one helper. Most helpers appear to be young birds who are assisting their parents in the rearing of later broods.

The major focus of our study is to understand why bee-eaters cooperate reproductively. In other words, what advantages do parents and helpers accrue from this cooperation? Current theories postulate two general types of advantages: direct advantages in breeding or survival, and indirect benefits through kin selection and inclusive fitness. Parents may gain increased breeding success or efficiency; helpers may gain valuable breeding experience before they initiate breeding on their own; and both may gain increased foraging efficiency or predator detection and protection by living together in a group. Indirectly, all may gain increased inclusive fitness via kin selection if helpers tend to assist individuals to whom they are related. For a more thorough discussion of these theories, see Alexander (1974), Wilson (1975), Emlen (1978) and Brown (in press).

In any study of cooperative birds, it is essential to be able to identify individuals and to follow these birds continuously for several years through successive breeding attempts. We capture the bee-eaters by putting mist nets in front of their colony at night; they are permanently marked by E.A.N.H.S. numbered rings. To identify individuals without having to recapture them, we use a coloured plastic wing-tag, called a 'saflag' that is wrapped around the humerus. Symbols of various design and colour are painted on the saflags, which also occur in several colours, and permutations of these enable us to identify several hundred birds individually.

Observations are concentrated at breeding or roosting colonies, using observation hides, during the two or three hours prior to sunset. At this time the birds go through a period of intense social activity, and it is possible to record which birds roost together and other relevant behavioural data. During breeding, these observations are supplemented by early morning counts of the birds emerging from holes (to determine group sizes) and counts of feeding visits during the mornings and afternoons. Breeding holes are inspected three times a week using a special periscope (Demong & Emlen 1975), and with this instrument it is possible to accurately determine clutch-size, hatch dates, and the number and ages of nestlings. Just prior to fledging, the young are carefully removed from the nest, weighed, measured, ringed, saflagged, and returned to the nest.

As this paper is a preliminary report of an on-going research project we will discuss only some aspects of reproduction which are relevant to an understanding of the adaptive significance of cooperative breeding. Overall breeding success in *M. bullockoides* has been low in recent years. Large scale breeding occurred during the long rains of 1977 and 1978, but only 16 per cent of all eggs laid during these seasons produced viable fledglings. Thirty-four per cent of these failures were the result of two disastrous floods on the Makalia River, each destroying all or nearly all holes in a breeding colony. Of the remaining failures, 31 per cent were caused by starvation, as evidenced by a retarded development and the slow disappearance of one, two, or more young from each nest. Even among the successful nests (here defined as those successfully fledging at least one young), reproductive success (RS), the proportion of eggs that produce a fledgling, was fairly low. In the vast majority of holes,

at least one fledgling died, and only 14 per cent of all successful groups had 100 per cent RS. This suggests that, at least in these years, bee-eaters had difficulty in obtaining sufficient food to feed their nestlings.

TABLE 1

Comparison of reproductive output of White-fronted Bee-eaters breeding as pairs or as groups with helpers. Data are from six colonies that bred during the long rains of 1977 or 1978

| | No. of Nests | Average Clutch | Average No. of fledglings produced | Reproductive success | Average feeding rate (visits to young/hour) |
|-----------------|-----------------|-------------------|--|-------------------------|---|
| Pairs alone | 50 | 2.54 | 0.60 | 21% | 5.1 (data from 21 nests) |
| Pairs + helpers | 31 | 3.06 | 1.26 | 40% | 6.6 (data from 17 nests) |

If food is limiting, it seems reasonable to try to relate breeding success to group size and to the amount of food each group brings to the nest. This is done in Table 1, using data from six colonies which bred during the long rains of 1977 and 1978. Only holes in which all relevant parameters are known were used in this analysis. Nests that were lost due to chance catastrophic effects (flooding), where group size could play no role in influencing success, have been omitted from the analysis.

Although mean clutch sizes were not significantly different ($P > 0.05$, F-test), pairs with helpers had a much higher (40 per cent) reproductive success than pairs alone (21 per cent), and produced on average twice as many young per nest. Thus on a per group basis, pairs with helpers out-reproduced those without ($P < 0.05$, F-test). On a per pair basis, the average fecundity of birds in pairs was slightly higher than that of birds in groups. Thus while helpers increased the reproductive output of a group, this increase was not as great as one would expect from the simple addition of extra birds.

If food is limiting during breeding, then RS should be correlated with the amount of food brought to the nest. In other words, pairs with helpers should bring more food (or should bring food at a higher rate) than pairs alone. In February and May of 1978, feeding rates were recorded at two breeding colonies. Feeding visits were recorded for 24 h periods in the morning and afternoon on two successive days (for a total of 10 observation hours per nest) when the nests contained young of between 5 and 10 days of age. Bee-eaters bring one food item per feeding trip, and although the size of the item brought varies considerably, simple analysis of the number of visits can be useful. Mean feeding rates for young being tended by pairs and groups are listed in the last column of Table 1. Pairs with helpers brought on average 29 per cent more food per hour than pairs alone, a result which correlates with their observed increase in RS. It thus appears that helpers do in fact contribute to increased breeding success, and one major way in which this is done is by increasing the amount of food brought to the young.

The results thus far describe advantages only to the parents, not the helpers. Why, then, should helpers 'help' instead of breeding on their

own. Unfortunately it takes many years of observation to answer that question, and our study has not yet progressed far enough to do so. At this point we can only list the types of data we wish to collect in order to understand the advantages to helpers. If helpers gain valuable breeding experience by helping for one or two years before they initiate breeding themselves, then one expects the breeding success of the *initial* attempt to be higher in birds that have been helpers than in birds that have not. If kin selection plays a role, then helpers should selectively help their kin, and might even provide assistance to others in proportion to their degrees of genetic relationship. If helpers gained protection from predators or access to better feeding areas by virtue of group membership, then individuals that are members of groups should show a higher survival rate than individuals who are not.

To test these ideas, it will be necessary to continue to follow the same individual bee-eaters for several years, building up information on their genetic relationships, keeping track of the amount of assistance they provide to one another. With the continued cooperation of the National Museums of Kenya, the Ministry of Tourism and Wildlife, and the personnel at Lake Nakuru National Park, we hope to continue our study until such answers are obtained.

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THE MOUNTAIN BUZZARD *BUTEO TACHARDUS* IN CENTRAL AFRICA

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MALAWI

On 4 December 1977 we visited the eastern escarpment forests of the Nyika Plateau (Malawi), in the Kasaramba area, above Nchenachena (10°45'S., 33°59'E.). While there, we saw briefly in flight a small *Buteo* whose size, shape and colour-pattern reminded us strongly of the Mountain Buzzard *Buteo tachardus oreophilus* we had seen in Kenya a year earlier. When this bird flew into, and did not emerge from, a small patch of montane forest (at about 2320 m altitude), our suspicions were strengthened.

We returned to the area on 11 December with three ornithologists who have seen Mountain Buzzards *B. t. tachardus* in South Africa, Dr S.J. Blaber, Mrs T. Blaber and Mr D.P. Cyrus. We had excellent views of a buzzard in the same area, and on one occasion it flew over our heads, calling repeatedly. Its voice reminded us of the territorial 'mewing' call of the Common Buzzard *B. buteo* in Europe. Above a forest patch, only a few hundred metres from where seen on 4 December, it was joined by a second bird, before both were lost to view.

We are all convinced that these birds were Mountain Buzzards, apparently a pair. A few Steppe Buzzards *B. buteo vulpinus* were present on the Nyika at this time, where they frequented open country and the edge of plantations up to about 2380 m. The body and under-wing patterns of the two forms are distinctly different, and the habitat and habits (especially the calling) of the Kasaramba birds argue strongly in favour of their being Mountain Buzzards. Unfortunately we were not able to investigate further the possibility that these birds were nesting. However, a nest with eggs in November in South Africa (Courtenay-Latimer 1941) suggests that our birds could have been breeding at that time.

D.P. Cyrus was able to tape record the voice of the calling bird on 11 December, and copies of this tape are now in the possession of Mr Cyrus and ourselves. The sonograms in Fig.1 compare the warning calls of

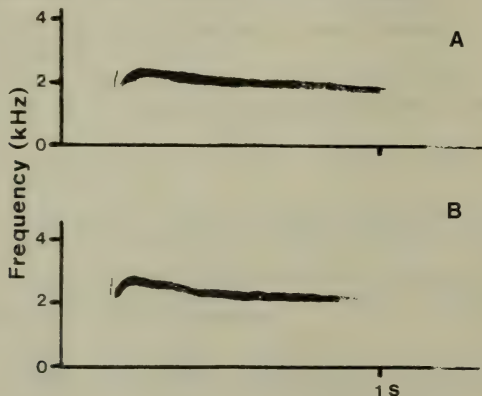


Fig.1 Warning calls of : A, Mountain Buzzard *Buteo tachardus* (Nyika, Malawi) and B, Common Buzzard *Buteo buteo* (Sweden, from Palmer & Boswell 1972)

the Nyika Mountain Buzzard and *B. buteo* of western Europe; they appear to be identical. Their similarity has been remarked on by several observers, for example Rudebeck (1956) when talking of South African populations. Rudebeck stated that *vulpinus* is silent when in South Africa, although Prof. W.R. Siegfried (*in litt.*) reports that it does call, and we heard two calling briefly together over the Chitunta Plain in north-western Zambia on 13 November 1978.

Although Benson & Benson (1977) suggested that there is unlikely to be a small resident *Buteo* in Malawi, the gap in the known distribution of the Mountain Buzzard in Central Africa has long been enigmatic, and our discovery is not entirely unexpected.

TANZANIA

Recent authors have tended to consider the Mountain Buzzard absent from northern Tanzania to Natal (Benson & Irwin 1963). However, Snow (1978a) shows a plot in Map 92 in southwestern Tanzania; he confirms (*in litt.*) that this is based on a reported specimen from Kigogo in the Uzungwa Mts (Bangs & Loveridge 1933: 153). This record has not found wide acceptance, possibly in part because it was obtained on 14 January, at a time when migrant *vulpinus* might seem more likely. At our request, Dr R.A. Paynter Jnr has kindly re-examined the specimen (which is in the Museum of Comparative Zoology at Harvard University), and he confirms (*in litt.*) that it is correctly identified as *B. tachardus* and is a male with a wing-length of 335 mm.

The Mountain Buzzard is not reported from the Usambaras in northeastern Tanzania by Sclater & Moreau (1932-33), but a December specimen from Philipshof was claimed by Friedmann (1928). This specimen is also at Harvard, and Dr Paynter (*in litt.*) confirms that it too is correctly identified as *tachardus*, being a female with a wing of 350 mm. Benson (1952) mentioned a possible specimen from Amani, but considered that its long wing pointed to it being probably *vulpinus*.

The northern population of Mountain Buzzard (the race *oreophilus*) is otherwise known on the evidence of specimens south to Kilimanjaro (Rudebeck 1956) and to Chakila in eastern Zaïre, at 3°41'S. (Prigogine 1971). In western Tanzania, along the other shore of Lake Tanganyika, there are sight records of possible Mountain Buzzards between July and September on Kungwe-Mahare (Ulfstrand & Lamprey 1960), which may well be correct in view of the specimens from the Itombwe.

SOME UNPROVEN RECORDS

A considerable gap exists between the Nyika in Malawi and the most northerly record of southern *B. t. tachardus*, which is a specimen from Zuurbbron in the Transvaal of South Africa, at about 27°20'S. (Rudebeck 1958). Some less satisfactory records have been claimed to reduce this gap. Sight records from the northern Transvaal were admitted by Siegfried (1971) and are mentioned by Snow (1978a), but were rejected by Brooke (1974). We know of no record of Mountain Buzzard in Rhodesia or Mozambique. A claimed specimen from Kasama in northern Zambia (White & Winterbottom 1949) cannot now be found in the collection of the British Museum (Nat. Hist.) Tring (C.W. Benson *in litt.*). It was accepted by the Museum at the same time as a specimen of Long-legged Buzzard *Buteo rufinus*, the sole Zambian record, which is also missing but which was identified by Benson and Capt. C.H.B. Grant. The altitude of Kasama is only 1400 m and the Mountain Buzzard is highly improbable there.

From Malawi, two specimen records of Mountain Buzzard had been claimed

prior to our Nyika sighting, although neither is accepted by Benson & Benson (1977). One from Mphunzi, reported by Benson (1944), was subsequently re-examined by both Benson (1952) and Rudebeck (1956) and found to be *vulpinus*. Similarly, a specimen from Luchenza in Cholo district (Benson 1940: 289) was considered by both authors to be *vulpinus* in all probability. This bird is in the collection at Tring, where C.W. Benson (*in litt.*) has kindly re-examined it for us. He reports that it is certainly *vulpinus*, on wing-length, although an abnormally coloured one - a view which is supported by a note on the label by G. Rudebeck made in 1969.

DISCONTINUOUS DISTRIBUTION

There appears to be no satisfactory evidence yet for the occurrence of the Mountain Buzzard between about 11° and 27°S. The most recent discussion of this discontinuous distribution is by Snow (1978b: 137-138). The situation may seem surprising in view of the close relationship between the eastern and southern African forms of *B. tachardus*, admitted by most authors, and the presence of apparently suitable habitat in the intervening areas. Such a distribution is not unique, however, and there appears to be a parallel in the absence from southern Malawi and Rhodesia of the Olive Woodpecker *Mesopicos griseocephalus*.

Snow (1978b) suggests that the distribution of Mountain Buzzards may be limited by competition with other, longer-established, buzzards. On the Nyika, the larger Augur Buzzard *B. rufofuscus* is common, and nests (*pers. obs.*) not only on cliffs, but also in forest patches where one might expect the Mountain Buzzard. However, *rufofuscus* appears to hunt exclusively over open grasslands, perhaps mainly for rodents, whereas *tachardus* has been reported feeding on chameleons, and might hunt mainly within forest. Possible competition between the two species would repay detailed field study.

The morphological differences between the northern and southern populations of Mountain Buzzard were first clarified by Rudebeck (1956), who nevertheless stressed the close similarities between the two and *vulpinus*, as have Siegfried & Frost (1971, 1973) and Winterbottom (1963). Opinion remains divided on whether to give specific or subspecific status to the various forms of Palaearctic and Ethiopian *Buteo buteo*, *sensu lato*. It has usually been considered that African breeding populations have an immediate Palaearctic origin, although Siegfried (1971) suggested an African origin for what he would consider two, now specifically distinct forms, *B. buteo* and *B. tachardus*. The nomenclatural situation has been confused by the discovery of Brooke (1974) that the description of the southern African populations apparently pre-dates the eastern African *oreophilus*, so that if the African birds are considered a single species, this long-established name would give way to *B. tachardus*.

As the differences in colour and pattern between eastern and southern African birds seem slight, it is perhaps best to continue to consider them conspecific. Unfortunately the colour illustrations of *B. tachardus* in Brown & Amadon (1968: Plate 105, Figs. 5,6) are misleading, in being far too rufous - a point brought to our attention by Dr Paynter (*in litt.*). This error has been confirmed by Drs D. Amadon and L.H. Brown (*in litt.*), but it is not now possible to determine the provenance of the specimens used for the illustrations.

While we were on the Nyika Plateau, we were unaware of the differences in plumage between *B. t. tachardus* and *B. t. oreophilus*, and we cannot

say to which form our sightings refer. On geographical grounds we would expect *oreophilus*. The Nyika is within the Tanganyika-Nyasa montane group, which is geographically and perhaps faunistically more closely related to montane forests to the north than to those of the southeastern group (Dowsett 1971). The nyika birds were found in the high altitude forests typical of *oreophilus*, whereas the nominate race is of necessity a bird largely of low coastal forest.

The apparent absence now of the Mountain Buzzard from Rhodesia and Mozambique may suggest that the two forms have been separated for some time, although Rudebeck (1956: 425) did suggest that one specimen from Natal showed some approach to *oreophilus*. Liversidge (1959) said that Mountain Buzzards had been shot out of this intervening area, but we agree with Benson & White (1960) that this is improbable. The belated discovery of the Mountain Buzzard in Malawi is doubtless a reflection of its isolated habitat and retiring behaviour - when not uttering its display call, it can be overlooked by the unwary. The possibility remains that the discontinuous distribution of the Mountain Buzzard is more apparent than real, and that further populations will be found in Central Africa.

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SOUTHWARD MIGRATION AT NGULIA, TSAVO, KENYA 1978/79

G.C. Backhurst & D.J. Pearson

This is the third one-season account of autumn Palaearctic migration at Ngulia. The previous two appeared in this journal (Backhurst & Pearson 1977, Pearson & Backhurst 1978) and it is intended to document each season's results for as long as the site is fully worked.

ACCOUNT OF THE SEASON

Ngulia Safari Lodge was manned by two to five ringers for four periods: 29-30 October, 5-8 November, 22 November - 11 December and 27 December - 7 January. The times when no cover was provided coincided with large moon conditions when numbers of migrants attracted to the lights are much reduced (see Pearson & Backhurst 1976). A list of birds ringed, with their scientific names, is given in Table 1. The very high total of over 8000 Palaearctic migrants was due to very thorough coverage and to a preponderance of misty and/or rainy nights. In fact, the season was exceptionally wet, with over 300 mm of rain recorded at the Lodge itself between late October and early January. Three-quarters of the birds ringed were caught at night.

Falls of birds in mist during the early hours of 30 October and on all four nights in early November resulted in 1212 migrants ringed, and served to demonstrate more convincingly than ever before those species which are mainly early migrants (see Pearson & Backhurst 1978) and which, because suitable catching conditions are unusual at this time of year, are seldom caught in any quantity.

The night of 29 October was clear; no passerines were seen although an adult Reed Warbler was caught in bush near the Lodge next morning. On 30th, mist descended for 2 h from 02:00, during which about 200 migrants were seen and 22 caught. The composition of this catch was highly unusual: there were only two warblers (both Whitethroats) but 11 *Oenanthe* spp. (6 Isabelline, 4 Eurasian, 1 Pied), 6 Rufous Bush Chats and 3 Spotted Flycatchers. Only five more birds were caught in the bush after dawn. This was only the second occasion that an October visit to Ngulia had coincided with mist, and the first on which night movement, albeit on a very small scale, had been recorded before the beginning of November.

The four nights 5-8 November were all misty. By contrast with the previous week, the volume of passerine migration was now considerable, and a large catch of interesting species variety was made. Sprossers were now dominant (680 ringed) with Whitethroat a poor second (107) followed by Rufous Bush Chat (64) and Spotted Flycatcher (57). The passage of Marsh Warblers, overall the dominant Ngulia species, was just beginning (36 ringed), and most of the species normally occurring in late November were already represented. Eurasian Nightjars were seen at night, and 15 were caught on 7th, while the three wheatear species, Rock Thrush and Nightingale continued to appear in small but nevertheless unprecedented numbers. On 5th, after ½ h of torrential rain just after midnight, Eurasian Swallows appeared and settled in the trees in hundreds; 28 were caught (more than the overall 1969/78 night total) together with a single Sand Martin. Two more Sand Martins and 4 Swallows were caught at night later during this visit. An Eleonora's Falcon found drenched on the ground before dawn on 5th, after apparently having hit a sloping roof, was new to Ngulia. It recovered and eventually flew off strongly to the south shortly after noon. Also new to Ngulia was a Whinchat caught at night on 7th, a species

TABLE 1

Numbers of Palaearctic night migrants ringed at Ngulia Safari Lodge
between October and February in the years 1969-1979

| Species | 1978/79 | %* | 1969/79 |
|---|---------|------|---------|
| Eleonora's Falcon <i>Falco eleonora</i> | 1 | - | 1 |
| Eurasian Roller <i>Coracias garrulus</i> | 9 | - | 12 |
| Corncrake <i>Crex crex</i> | 5 | - | 5 |
| Spotted Crane <i>Porzana porzana</i> | 0 | - | 1 |
| Eurasian Cuckoo <i>Cuculus canorus</i> | 1 | - | 2 |
| Lesser Cuckoo <i>C. poliocephalus</i> | 0 | - | 1 |
| Eurasian Nightjar <i>Caprimulgus europaeus</i> | 21 | 360 | 56 |
| Red-backed Shrike <i>Lanius collurio</i> | 123 | 269 | 403 |
| Red-tailed Shrike <i>L. isabellinus</i> | 50 | 116 | 315 |
| Hybrid <i>collurio-isabellinus</i> | 0 | - | 2 |
| Tree Pipit <i>Anthus trivialis</i> | 1 | 55 | 12 |
| Yellow Wagtail <i>Motacilla flava</i> | 1 | - | 3 |
| Golden Oriole <i>Oriolus oriolus</i> | 2 | - | 8 |
| Spotted Flycatcher <i>Muscicapa striata</i> | 72 | 547 | 151 |
| Great Reed Warbler <i>Acrocephalus arundinaceus</i> | 2 | 92 | 15 |
| Basra Reed Warbler <i>A. griseldis</i> | 25 | 65 | 258 |
| Marsh Warbler <i>A. palustris</i> | 2104 | 169 | 9753 |
| Sedge Warbler <i>A. schoenobaenus</i> | 6 | 133 | 43 |
| Reed Warbler <i>A. scirpaceus</i> | 4 | 67 | 41 |
| Icterine Warbler <i>Hippolais icterina</i> | 0 | - | 1 |
| Upcher's Warbler <i>H. languida</i> | 18 | 65 | 170 |
| Olive-tree Warbler <i>H. olivetorum</i> | 21 | 121 | 128 |
| Olivaceous Warbler <i>H. pallida</i> | 13 | 52 | 166 |
| River Warbler <i>Locustella fluviatilis</i> | 201 | 116 | 1264 |
| Savi's Warbler <i>L. luscinoides</i> | 0 | - | 1 |
| Wood Warbler <i>Phylloscopus sibilatrix</i> | 0 | - | 1 |
| Willow Warbler <i>P. trochilus</i> | 146 | 231 | 530 |
| Blackcap <i>Sylvia atricapilla</i> | 21 | 573 | 45 |
| Garden Warbler <i>S. borin</i> | 57 | 130 | 326 |
| Whitethroat <i>S. communis</i> | 2054 | 175 | 9235 |
| Barred Warbler <i>S. nisoria</i> | 24 | 50 | 315 |
| Rufous Bush Chat <i>Cercotrichas galactotes</i> | 99 | 284 | 320 |
| Iranian <i>Irania gutturalis</i> | 114 | 124 | 679 |
| Sprosser <i>Luscinia luscinia</i> | 2839 | 448 | 6744 |
| Nightingale <i>L. megarhynchos</i> | 67 | 221 | 250 |
| Rock Thrush <i>Monticola saxatilis</i> | 21 | 600 | 43 |
| Isabelline Wheatear <i>Oenanthe isabellina</i> | 37 | 2775 | 45 |
| Eurasian Wheatear <i>O. oenanthe</i> | 30 | 1200 | 45 |
| Pied Wheatear <i>O. pleschanka</i> | 19 | 2850 | 23 |
| Redstart <i>Phoenicurus phoenicurus</i> | 0 | - | 1 |
| Whinchat <i>Saxicola rubetra</i> | 2 | - | 2 |
| Eurasian Swallow <i>Hirundo rustica</i> (at night) | 35 | 875 | 59 |
| Sand Martin <i>Riparia riparia</i> (at night) | 4 | - | 5 |
| Total ringed | 8249 | | 31 480 |
| Number of species | 36 | | 42 |

*The 1978/79 total expressed as a percentage of the 1972/78 mean for each species.

rare in eastern Kenya; P.C. Lack (pers. comm.) had only one record for Tsavo East and we know of no others from Tsavo although the species is listed for the Parks by Williams (1967).

Many Tree Pipits and Yellow Wagtails were heard at night during the early November visit but, as usual, neither species was attracted to the lights to any great extent. The one Yellow Wagtail caught on 7th was only the third ringed at Ngulia. The first Eurasian Roller was seen at night on 7th, and there were three in the trees next night.

The third period of cover, 22 November - 11 December, resulted in 76 per cent of the season's catch (over 6000 birds). Only four nights were unproductive due to lack of mist or (on 9 December) to the moon effect and high winds. Marsh Warblers were already in substantial numbers on 22 November, and 1755 were ringed during this period (max. 242 on 28th). The Sprosser continued to be the most-caught species until the end of the first week in December, when numbers seemed to tail off (2140 ringed during the period, max. 373 on 28th). Whitethroats were in good numbers throughout the period (1653 ringed, max. 286 on 3rd). Capture rates indicated that numbers of passerines around the lights during mist were usually several times higher than under similar conditions during early November.

The nine days 25 November - 3 December were particularly productive with the following 24h ringing totals: 581, 567, 847, 435, 816, 613, 337, 195 and 739. The night of 26/27 November deserves special mention. Mist came down at 21:00, and birds quickly appeared in scores below the lights. After an hour of heavy rain, catching began at 22:00 but had to be curtailed by 23:00 by partially closing the net. The net was fully closed between 03:00 and 04:00 to enable the bulk of the accumulated birds to be ringed. The night's catch of 525 included no less than four Corncrakes (the first to be ringed at Ngulia and in East Africa), five Eurasian Rollers, one Eurasian Cuckoo, a Great Reed Warbler and a second Whinchat. The harsh conditions, with further heavy showers in the early hours, caused a large number of birds, estimated as over 10 000, to remain near the Lodge until dawn. Seven nets, totalling 120m, were operated in the bush from 05:45 to 11:00 and produced a further 322 migrants. The majority were Sprossers, but good numbers of Marsh Warblers and White-throats were included, as well as a second Great Reed Warbler, and 29 Red-backed Shrikes, bringing the day's total for this species to 41, a record for Ngulia.

During this late November to early December period, Eurasian Rollers were often numerous at night, with up to 200 resting in a single tree; nine were caught. This species has been seen at night each year since the first visit by A.D. Forbes-Watson in 1969 (see Moreau 1972: 265), but had never previously been caught. The Roller is a well known diurnal migrant, and loose flocks are regularly recorded flying south down the Ngulia valley during daytime, usually in early December. Whether the Roller, or for that matter the Eurasian Swallow and the Sand Martin, *migrate* over Tsavo at night remains conjectural. Diurnal migrants will perforce migrate at night when they find themselves over inhospitable terrain (such as deserts or oceans) at dusk, just as nocturnal migrants will have to travel at times by day. Rollers and Swallows are most often seen at night at Ngulia during storms, which suggests perhaps that heavy rain has caused them to leave their roosting places and head off, only to be later confused by the Ngulia lights.

Misty nights predominated again during the fourth period of cover

(27 December - 7 January), but the volume of migration by this time was greatly reduced, so that these 12 days produced only 780 new birds. Very few birds were seen at night, even under perfect mist conditions, and the highest night catch of 70 (on 28 December) was achieved in 3 h using two 18 m nets - a combination which would have been quite unmanageable earlier in the season. Marsh Warblers and Whitethroats continued to be the main species while Sprossers (19 ringed in all) had virtually stopped moving. River Warbler (32 ringed) and Willow Warbler (22) continued to appear in small numbers and Garden Warbler (43) became more numerous, especially in the lush fruiting bush south of the staff village. Seventeen Blackcaps ringed in this period were exceptional, and a number of retraps showed that some were making an extended stopover, relying for food on the abundant berry crop. The number of retraps increased during late December/early January as has been noted in other years, but one bird in particular was of considerable interest: a first winter River Warbler originally ringed on 8 December at 15.7 g, fat 1 was retrapped on 6 January at 07:00 when it weighed 19.5 g, fat 3 - a 24 per cent increase in weight. In spite of the large number of birds handled during the season, only one was a retrap from an earlier year, a Red-tailed Shrike which had been ringed on 25 January 1977 and was retrapped on 2 January 1979.

DISCUSSION

Ngulia Lodge has been manned effectively since late 1971. During these eight years much has been learned about the southward night migration, and many aspects of the phenomenon are now predictable. However, new problems are raised each year and, in many cases, explanations can be conjectural at best. A few questions relating to catch composition are discussed below.

The broad change in species' composition during the course of the migration period has already been discussed (Pearson & Backhurst 1978). General conclusions were further supported by catches made during 1978/1979, and Table 2 brings analysis of this aspect up to date. Catch composition also shows marked fluctuation from one day to the next, not only in the case of the minor species, but also as regards the contribution of the three major ones as well. This could be the result of changes in the composition of the overhead migration, with implied species differences in the numbers taking off over a wide departure area from one night to the next. It could also, however, result from a tendency to local flocking on the part of individual species during the course of migration, perhaps after meeting misty conditions. Surprisingly, there has been little indication of change in proportions of the main species from one hour to the next of the same night. When night catching has continued from near midnight to dawn, the broad catch composition has not usually varied, even on occasions with patchy mist when birds were arriving and departing the whole time. Thus, large scale species aggregation would not seem to occur during the migration of the birds involved, and we are led to the view that major daily species differences in the catch are due mainly to factors influencing migration take-off.

For the less common species, a different reason for day to day fluctuation probably also applies. There are often indications of association of birds into small parties, probably after their disorientation by the lights. Willow Warblers and Iranias may be mentioned in particular. These species are handled in quite small numbers, yet indi-

TABLE 2

An analysis of the 18 main species of Palaearctic night migrants ringed at Ngulia Safari Lodge between 1 November and 16 January, shown as percentages of the total half-month catch for the years 1972-1979

| Species | Nov I | Nov II | Dec I | Dec II | Jan I |
|-------------------------|-------|--------|--------|--------|-------|
| Eurasian Nightjar | 1.3 | 0.1 | * | 0 | 0.1 |
| Red-backed Shrike | 3.5 | 2.1 | 0.4 | 0.1 | 0.5 |
| Red-tailed Shrike | 1.3 | 1.3 | 0.5 | 1.1 | 0.9 |
| Spotted Flycatcher | 3.5 | 0.3 | 0.1 | * | 0 |
| Basra Reed Warbler | 0.2 | 1.0 | 1.0 | 0.5 | 0.8 |
| Marsh Warbler | 8.1 | 27.7 | 37.1 | 37.9 | 40.3 |
| Upcher's Warbler | 0.3 | 0.4 | 0.5 | 0.8 | 1.6 |
| Olive-tree Warbler | 1.1 | 0.6 | 0.2 | 0 | 0 |
| Olivaceous Warbler | 1.5 | 0.5 | 0.3 | 0.4 | 0.4 |
| River Warbler | 1.6 | 3.9 | 5.2 | 3.4 | 3.9 |
| Willow Warbler | 1.6 | 1.0 | 2.2 | 2.4 | 2.0 |
| Garden Warbler | 0.2 | 0.3 | 0.9 | 2.1 | 5.2 |
| Whitethroat | 18.8 | 27.2 | 30.7 | 37.0 | 32.8 |
| Barred Warbler | 1.1 | 0.8 | 0.7 | 1.3 | 2.9 |
| Rufous Bush Chat | 5.6 | 0.9 | 0.3 | 0.2 | 0 |
| Irania | 3.2 | 1.8 | 1.8 | 3.1 | 2.0 |
| Sprosser | 40.9 | 28.4 | 16.8 | 7.9 | 4.7 |
| Nightingale | 2.9 | 1.0 | 0.4 | 0.3 | 0.2 |
| % birds/half month | 9.3 | 37.4 | 34.5 | 14.6 | 4.3 |
| No. of birds/half month | 2854 | 11 504 | 10 598 | 4497 | 1314 |

Percentages are rounded to the nearest 0.1 per cent, those less than 0.05 per cent (but greater than 0) are shown by an asterisk (*).

viduals are often caught, perhaps three or four together, close to one another in the same net at night. Table 3, which covers nine days of large catches in late November/early December 1978, serves to demonstrate the extent of day to day catch differences. It may also be noted that during this season, both Great Reed Warblers were caught on the same date, four of the five Corncrakes were caught during the same night and 15 of the 21 Eurasian Nightjars were caught on one night.

Year to year catch differences are also of interest, and may of course be related to breeding success or changes in migration strategy. The predominance of one or the other of the main species may vary from year to year. Thus, Sprossers dominated catches throughout the first six weeks of the 1978 migration period to an extent previously only experienced in 1974. Annual differences in relative abundance tend to be more marked in the case of the minor species, however. Thus, during the 1978/79 season, the overall contributions of Basra Reed Warbler, Olivaceous Warbler, Upcher's Warbler and Barred Warbler were particularly low (see Table 1), whilst those of the three wheatear species were far higher than usual. As mentioned above (p. 19) wheatears formed the bulk of the small catch of 30 October, thus supporting our view that they are early migrants, seldom caught in 'normal' years because of lack of suitable weather at the time of their peak passage. However, all three species continued to appear at night in small numbers later in the migration (although the last Pied was

TABLE 3

Totals of eight species expressed as percentages of the daily catch during nine consecutive days in late November and early December 1978

| Species | N O V E M B E R | | | | | | D E C E M B E R | | |
|---------------------------|-----------------|------|------|------|------|------|-----------------|------|------|
| | 25 | 26 | 27 | 28 | 29 | 30 | 1 | 2 | 3 |
| Red-backed Shrike | 2.2 | 0.9 | 4.8 | 1.1 | 0.7 | 0.7 | 0.6 | 0 | 0.1 |
| Marsh Warbler | 37.7 | 34.6 | 20.9 | 33.6 | 29.7 | 34.7 | 11.6 | 30.0 | 21.8 |
| River Warbler | 2.4 | 0.9 | 2.0 | 2.8 | 3.6 | 2.4 | 1.8 | 1.0 | 1.8 |
| Willow Warbler | 0.3 | 0.7 | 3.3 | 0.9 | 0.4 | 0.8 | 0 | 1.0 | 2.0 |
| Whitethroat | 17.2 | 23.1 | 23.1 | 23.2 | 16.2 | 21.2 | 41.8 | 36.9 | 38.7 |
| Irania | 1.0 | 1.9 | 1.4 | 1.6 | 0.5 | 3.6 | 0.3 | 0 | 0.7 |
| Sprosser | 34.6 | 33.3 | 38.4 | 31.0 | 45.7 | 33.0 | 39.2 | 27.2 | 33.4 |
| Nightingale | 0.5 | 0.5 | 0.1 | 1.4 | 0.7 | 0.3 | 0.6 | 0.5 | 0.1 |
| Total daily catch (birds) | 581 | 567 | 847 | 435 | 816 | 613 | 337 | 195 | 739 |

on 3 December), to an extent not seen in previous years. Wheatears prefer dry open areas and this habitat was scarcer than usual due to the excessive rainfall. We suggest that continued appearances at night were the result of increased movement of wheatears in search of suitable wintering areas. Numbers of wheatears seen during the day, and the relative abundance of the three species in Tsavo, were not noticeably different during November and December than in other years.

Other questions of interest concern species which are regularly heard at night, but rarely caught, and species for which a marked bias exists towards the night catch as compared to the bush catch, or *vice versa*. Tree Pipits and Yellow Wagtails have already been mentioned. These species are commonly heard in the mist on some nights each year, especially in November, but are rarely seen on the ground, or caught. We have the impression that these two species are less disorientated by the lights, perhaps because they tend to fly higher in the mist, but it is still surprising that they are not brought down in larger numbers on nights of torrential rain. It is possible that the vocal activity of these birds has given a misleading idea of numbers migrating at night relative to other species. However, some real difference in behaviour as compared with the warblers and small thrushes does seem to be indicated.

Palearctic shrikes are occasionally netted at night, but tend to contribute much more to bush catches. They are often caught quite late in the morning, and remain around the Lodge for most of the day. Presumably when grounded, shrikes have less tendency to depart rapidly at dawn than most other migrants. By contrast, the Willow Warbler and River Warbler can be identified as species contributing mainly to night catches. The former probably tends to evade nets during the day by keeping to the tops of trees and tall bushes. The latter is particularly prone to enter the Lodge building, where a high proportion of the night birds are picked up by hand, whilst during the daytime the species is largely terrestrial and difficult to net, often preferring to run on the ground rather than to fly.

Over 31 000 Palearctic migrants have been ringed at Ngulia in autumn between 1969 and early 1979 yet not a single bird wearing a foreign ring has been controlled, even though there have been 14 foreign recoveries

of Ngulia-ringed birds, and four of these have been to countries with substantial ringing schemes. This apparently strange situation presumably reflects the vast numbers of birds which leave their breeding grounds unringed, compared with the relatively minute numbers caught at Ngulia. Only seven birds ringed at Ngulia have been retrapped there in a subsequent season. This is, however, not surprising. Bearing in mind the vast numbers of birds involved, it follows that the chances of a bird ringed in season 'A' (when it was probably grounded by a combination of mist and moonless conditions) being over Ngulia in season 'B' or 'C' under similar conditions *and* being netted, must be remote. It is significant in this context that all the birds which *have* been retrapped in subsequent seasons have been caught at times which strongly suggest that Ngulia is their final winter destination.

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SHORT COMMUNICATIONS

LITTLE GULL *LARUS MINUTUS* AT LAKE TURKANA: A NEW BIRD FOR KENYA On 7 January 1979, just north of Loiengalani (2°46'N., 36°43'E.) on the eastern side of Lake Turkana, I saw a group of about 60 Little Gulls *Larus minutus*. The Little Gulls were close in to the shore and were taking food in flight from the surface of the water. I was able to compare them with other larids present, namely at least 250 White-winged Black Terns *Chlidonias leucopterus*, about 50 Gull-billed Terns *Gelochelidon nilotica*, 14 Caspian Terns *Sterna caspia*, 12 Lesser Black-backed Gulls *Larus fuscus* and about 45 Grey-headed Gulls *L. cirrocephalus*. The Little Gulls were small, not much larger than the White-winged Black Terns, with rounded wings, greyish-black bill and legs, pale head with dark grey on the crown and a blackish spot behind the eye. About half the birds were adult with wings pigeon-grey above with white tips and black under the wings. Most were in winter plumage but five or six were already assuming breeding plumage with black heads and red legs and bills. The rest of the group were immature with dark zigzag bands across the wings above, a black band at the end of the tail and light underwings. An intensive search of the area next day failed to reveal the Little Gulls. I am very familiar with the species in Europe where I have observed it breeding as well as on migration and during the winter.

The Little Gull is not recorded for the Ethiopian region by White (1965) but the Lake Turkana sighting appears to be the fifth record for sub-Saharan Africa (see Oree 1974) and the first for the eastern side of the continent. The previous records are from Sierra Leone (8½°N.), Nigeria, two records (6½°N.) and Angola (12°S.).

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Guenter Groh, Amalienstrasse 12, D-6730 Neustadt/Weinstrasse, BRD.

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SOME NESTING DATA ON THE NYANZA SWIFT *APUS NYANZAE* There is little information in the literature concerning nesting habits of African swifts. Mackworth-Praed & Grant (1957) state that *Apus nyanzae* "nest in crevices of cliffs and chinks in rocks using mud to enclose a small crevice. Nest lined with straw and feathers. Eggs one or two, white; no measurements available." According to Dr E.K. Urban (quoted by Brooke 1971), *nyanzae* breeds freely in old buildings in Addis Ababa, Ethiopia. The discovery of nests of this species in two air vents in my house in Nakuru provided a unique opportunity to gather nesting data.

The nests were found on 9 September 1977 after closer inspection of the vents which had been used for several months as roosting sites by Nyanza Swifts. Each nest was located in a horizontal vent approximately 10m above ground level, facing west. The house was 1900m above sea level. The two vents are 6m apart in two separate first floor rooms. The vents are identical in size and structure: stone-walled, they are 17cm high, and 16 x 13cm in length and width. The entrance to each vent is partially occluded by two small vertical concrete pillars. Direct observation into each vent is possible through a fine mesh screen from within each

room at near ceiling level. The nests, while active, were observed daily.

When discovered, each nest contained two elliptical, pearly white, unspotted eggs. No egg measurements were obtained because of the risk of disturbing the birds. Incubation was carried out by both sexes, alternately, throughout each day in both nests. It was impossible to distinguish the sex of the adults, but each bird took two or three turns at incubation daily. At night one adult remained on each nest while each mate roosted beside its respective nest.

On 17 September it was noticed that one pair of adults was absent for much of the day from their nest, probably because of disturbance created by my frequent observations. Over the next several days, they spent less time at the nest during daylight hours although they continued to roost at the nest site. On 20 September the nest appeared abandoned altogether, and three days later, the eggs were gone. It could not be determined if the eggs were destroyed by the adults or if they were taken by a predator.

Daily observations were continued at the remaining nest. On 28 September two nidicolous young were hatched. The nestlings were without down until 8 October when brown-grey down began to appear. By 20 October the nestlings were partially fledged and, on 8 November they both left the nest. They continued to roost with the parents in the vent until 3 January 1978 when the nest was collected for examination.

The nest consisted of a circular, shallow cup of feathers, dry grass and saliva, supported by a base of mud and dry grass. The cup measured 8.5 cm internal diameter and was 2.5 cm deep. It was also examined by G.R. Cunningham-van Someren and was deposited in the Section of Ornithology, Division of Natural Sciences of the National Museums of Kenya in Nairobi.

From the time intervals of the successful nesting, the following may be concluded: the incubation period was at least 19 d (9 September, when the eggs were discovered, to 28 September when hatching occurred. The laying date was not known). Fledging time in the nest, before flight, was 41 d for both birds.

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Larry T. Schwab, Box 1366, Nakuru.

Received 10 May 1978, revised 8 February 1979

GREENBULS OF THE TAITA HILLS, S.E. KENYA The Taita Hills, rising to an imposing 2210 m in southeastern Kenya, were considered by Moreau (1966) as the northernmost outcrop of the Tanganyika-Nyasa montane complex. However, Dowsett (1971) was of the opinion that they, together with the Pares and Usambaras in northeastern Tanzania, had no connexion with the Tanganyika-Nyasa group, the northern limit of which he felt was best taken as the Ulugurus and their impoverished neighbours the Ukagurus and Ngurus.

Certainly the avifauna of the Taita Hills has much in common with that of the Pares and Usambaras and, despite their close proximity to Mt Kilimanjaro, they contain three very distinct and endemic subspecies. Surrounded by an ever increasing human population, less than 5 km² of

forest remain today on the Taita Hills, and the avifauna, though greatly impoverished, is typically montane in composition.

The family Pycnonotidae is represented by five species whose current status may be summarized as follows.

ANDROPADUS MILANJENSIS STRIIFACIES Stripe-cheeked Greenbul

Not uncommon along forest edge, occurring both in the canopy and at middle levels. Generally a rather shy and silent species.

ANDROPADUS TEPHROLAEMUS USAMBARAE Mountain Greenbul

Although previously unrecorded from Kenya, one individual of this distinctive race was seen briefly, but well, at very close range in company with two *A. milanjensis* along the forest edge on 14 August 1978. This race is common in the West Usambaras and is also recorded from the nearby South Pares. This would appear to be the first record of the Mountain Greenbul from the Taita Hills.

PYCNONOTUS BARBATUS LAYARDI Yellow-vented Greenbul

This ubiquitous species is common and widespread throughout the area.

PHYLASTREPHUS FLAVOSTRIATUS TENUIROSTRIS Yellow-streaked Greenbul

Mackworth-Praed & Grant (1960) and White (1962b) give the range of this race as the Taita area of southeastern Kenya. The only known record of this is the female collected by V.G.L. van Someren on Mt Kasigau on 18 November 1938, now in the Chicago Museum (Rand 1958). Neither Chapin (1953) nor Hall & Moreau (1970) make reference to this record. The present status of this bird is unknown.

PHYLASTREPHUS PLACIDUS PLACIDUS Placid Greenbul

A fairly common species occurring in small parties and frequently found foraging at the lower levels and amongst the forest floor leaf litter.

I should like to thank Mr C.W. Benson and Maj M.A. Traylor for drawing my attention to the record of *Phyllastrephus flavostriatus*.

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- D.A. Turner, Box 48019, Nairobi.

Received 13 February 1979

RED-TAILED GREENBUL *CRINIGER CALURUS* IN TANZANIA I recently provided P.L. Britton with some Tanzanian bird records for the period 1970-73 in case they were of interest for the forthcoming *Birds of East Africa*. Among them was a record of the Red-tailed Greenbul *Criniger calurus* at Bukoba in West Lake. According to Britton (*in litt.*) this species was not collected in Bukoba District by either A. Loveridge or Th. Andersen, so that my sighting is still the only record for Tanzania. It is mentioned by Mann (1976) without details.

On 24 October 1970 several were watched in some large fruiting trees near the Bukoba Hotel, feeding with flocks of Rüppell's Long-tailed Glossy Starlings *Lamprotornis purpuropterus* and Splendid Glossy Starlings *L. splendidus*, and several Black and White Casqued Hornbills *Bycanistes*

subcylindricus, Double-toothed Barbets *Lybius bidentatus* and Eastern Grey Plantain Eaters *Crinifer zonurus*. They were readily identified by their prominent white throats contrasting with yellowish underparts, dark greenish-olive upperparts, and greyish-brown crown, nape and cheeks. In spite of their popular name their reddish-brown tails were not conspicuous except when caught in bright sunlight. However, their white throats were very noticeable and made them relatively easy to pick out in dark foliage.

REFERENCE

MANN, C.F. 1976. Some recent changes in our knowledge of bird distribution in East Africa. *Journal of the East Africa Natural History Society & National Museum* 157: 1-24.

W.G. Harvey, 2 Little Bredlands, Bredlands Lane, Westbere, Canterbury, Kent, England. Received 20 December 1978

BARE-EYED THRUSH *TURDUS TEPHRONOTUS* FROM THE SELOUS GAME RESERVE

A single specimen of the Bare-eyed Thrush *Turdus tephronotus* was taken in a mist net set in wooded grassland at the edge of riverine thicket near Karl Jahn's Rufiji River Tented Camp, Selous Game Reserve (Rufiji District, Coast Region, Tanzania, c. 7° 47' S., 30° 14' E.) on 25 May 1978. The bird, catalogued in the University of Dar es Salaam vertebrate collection as UDSM-B-137, was a female showing no sign of reproductive activity. Nymphal ticks of the genus *Amblyomma* were found on the bird; two were attached to the outer covering of the lower mandible and three were attached to the inner lining of the mandible inside the mouth.

This specimen and a record of a bird of this species examined (but presumably not collected or preserved) on 19 August 1974 by M.A. & G.A. Matzke (undated MS: The bird fauna of the Selous Game Reserve) considerably extend the range of this species as shown in Mackworth-Praed & Grant (1960) and Hall & Moreau (1970). We thank H. Hoogstraal and H.Y. Wassef for identification of the ticks.

K.M. Howell and C.A. Msuya, Department of Zoology, University of Dar es Salaam, Box 35064, Dar es Salaam. Received 14 November 1978

PRELIMINARY REPORT ON THE JANUARY RANGE AND ABUNDANCE OF PALAEARCTIC DUCKS IN EAST AFRICA For the second year running the Ornithological Sub-committee of the East Africa Natural History Society has actively co-operated with the International Waterfowl Research Bureau in undertaking Palaearctic duck counts systematically (rather than on an *ad hoc* basis, as in the past) at about 30 localities. Most of these sites are on the Kenyan Rift Valley lakes, smaller waters in the western highlands and waters nearer Nairobi although one Ugandan water and two localities in Tanzania were also covered in 1979.

Table 1 gives the list of waters covered in January during at least one season and the species of Palaearctic duck, with some indication of abundance, found on each water.

Due, no doubt to the wet conditions in both years north of the equator, no single species concentrations reached four-figure proportions, although numbers were generally slightly higher in January 1979 than

TABLE 1

| | | |
|--|--------------------|--|
| Tana Catchment | | |
| Kindaruma Dam | - | |
| Mwea Rice Irrigation Scheme | - | |
| Makuyu Dams | - | |
| Gethumbwini Dam, Thika | G, Te | |
| Upper Athi Catchment | | |
| Athi River oxidation ponds | G, P, S | |
| Thika oxidation ponds | G, P, S | |
| Dandora oxidation ponds | G | |
| Nairobi National Park dams | x | |
| Smart's Swamp, Limuru | G, P, S | |
| Lari Swamp, Limuru | - | |
| Ruiru Dam | - | |
| Tigoni Dam | - | |
| Riari River Dam, Kiambu Forest | - | |
| Lake Amboseli | x | |
| Rift Valley Catchment | | |
| Lake Naivasha | G, P, S, W | |
| Lake Ol Bolossat | G, P, S, Te, Tu, W | |
| Nyakiani Dam | S, W | |
| Rift Valley Swamp, Ngong | G, P, S | |
| S. Ewaso Nyiro Swamp | G, P, S, Te, W | |
| Ararai Swamp, Mogotio-Bogoria | G, P, Te | |
| Lake Baringo | G, P, S | |
| Ferguson's Gulf, Lake Turkana | G, S | |
| Lake Nakuru | G, P, S, Te | |
| Lake Basin | | |
| a) Trans Nzoia - Uasin Gishu - Nandi Highlands | | |
| Timboroa Dam | - | |
| Lessos Dam | G, P, S, W | |
| Kaptagat Dam | - | |
| Kipkabus Dam | G, S | |
| Sergoit Lake | G | |
| Lewa Downs Dam, Eldoret | S, Tu, W | |
| Ziwa Sisal Dam, Moi's Bridge | G, P, S, Te, W | |
| b) Nyanza | | |
| Ahero Rice Irrigation Scheme | - | |
| Kisumu oxidation ponds | - | |
| Winam Gulf (part) | - | |
| Coast Province | | |
| Sabaki River mouth | - | |
| Aruba Dam | S | |
| Lake Jipe | - | |
| Uganda | | |
| Mabamba Swamp | - | |
| Tanzania | | |
| Ngorongoro Crater | P, S | |
| Momela Lakes, Arusha N.P. | P, S | |

Key to Table 1 opposite

- G = Garganey *Anas querquedula*
 P = Pintail *A. acuta*
 S = Shoveler *A. clypeata*
 Te = Teal *A. crecca*
 Tu = Tufted Duck *Aythya fuligula*
 W = Eurasian Wigeon *Anas penelope*
 - = no Palaearctic ducks seen
 x = full information unavailable at time of writing
 but no significant numbers present

Letters in italics = concentrations of 50 or more birds.

during the corresponding month in 1978. Maximum counts during January 1979 are given in Table 2 below.

TABLE 2

| | | |
|-----------------|-----|-----------------------|
| Garganey | 435 | Thika oxidation ponds |
| Pintail | 700 | Lake Ol Bolossat |
| Shoveler | 600 | Lake Ol Bolossat |
| Teal | 20 | Lake Nakuru |
| Eurasian Wigeon | 60 | Lake Naivasha |

An immediate aim of the international counting is to compile a series of winter distribution maps, which will be undertaken by G.L. Atkinson-Willes at Slimbridge, for a proposed *Atlas of Palaearctic Waterfowl*. The maps will attempt to define, in addition to providing information on numbers, the winter (i.e. January) range and the areas within which the species are recorded regularly on most of their main resorts. The European and Middle Eastern series are scheduled for completion by 1980 and Africa will be completed the following year. This means that counting will continue up to and including 1981 at least.

Volunteers who would like to cover waters in January 1980 should contact me direct.

B.S. Meadows, East African Organizer, International Wildfowl Counts,
 Box 30521, Nairobi.

NOTICES

5th PAN-AFRICAN ORNITHOLOGICAL CONGRESS - PRELIMINARY NOTICE

The 5th Pan-African Ornithological Congress will be held in Lilongwe, Malawi from 23 to 30 August 1980. Full details of costs and proceedings will be issued in the near future. Further information can be obtained from L.W. Gillard, Executive Secretary 5th PAOC, Box 84394, Greenside, Johannesburg 2034, South Africa.

DISTRIBUTION MAPPING SCHEME FOR EAST AFRICA

In order to complement similar work already being undertaken in Ethiopia, Somalia, southern Sudan and Zambia, the EANHNS Ornithological Sub-committee has recently decided to embark on a distributional mapping scheme for Kenya, Uganda and Tanzania.

The basic area unit of the scheme, in line with that used in the other countries mentioned, is the one-degree square, divided into four quarters. Altogether, East Africa falls into 178 one-degree squares, 67 squares or part squares in Kenya, 29 in Uganda and 98 in Tanzania. Each square has a number and each quarter a letter, as shown below. In addition, the

| | |
|----------|---|
| a | b |
| ---75--- | |
| c | d |

month in which the observation was made may be appended as a numeral from 1 to 12. When the month of the observation or record is not known, as could happen when abstracting records from certain sources, this can be shown by a question mark instead of a numeral. The squares have been numbered, from the northwest corner, on the Survey of Kenya map SK 80 (scale 1:2 500 000). Thus square 1 comprises just a small area of north-eastern Uganda while square 178 has only a small section of southern Tanzania included. In the example above the square shown covers Nairobi (northeast corner) so that a record of a bird seen in the City in January and March would be designated 75b,1,3.

Depending on the form of ones bird notes and area lists, there are three ways in which records can be supplied for use by the scheme:

- Lists of species from individual localities provided that the places can be accurately identified, either to a quarter-degree square or by their geographical co-ordinates. Months should be given whenever possible.
- By using a species list: enter the square number and letter of each quarter-degree square visited at the top of each vertical column then record each species seen alongside the species name, not by a tick but by a numeral denoting month..
- By using a species list: mark against each species the quarter-degree square plus month in which it was recorded.

Whichever method is selected, breeding can be shown by underlining the numeral denoting the month.

Periodically, distribution maps for selected species will be published in *Scopus* or in the *EANHNS Bulletin* so that contributors and potential contributors will be acquainted with the aims and progress of the scheme.

Records or further information may be obtained from D.A. Turner, Box 48019, Nairobi.

Continued from inside front cover

'References'; the name(s) of the author(s) and date(s) of publication should be given in the text in the normal way. A list of the works concerned is given below.

Observers are asked to send in records of birds for inclusion in the annual East African bird report issue. Records which appear in the *National Museums of Kenya Department of Ornithology Newsletter* will be reviewed for the annual report but, in the case of rare birds or birds showing an extension of range, full details supporting the record should be submitted, whether the record is sent to the *Newsletter* or *Scopus* - this will save correspondence later on.

All contributions should be sent to Dr D.J. Pearson, Department of Biochemistry, University of Nairobi, Box 30197, Nairobi, Kenya.

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Other members of the Sub-Committee are: G.C. Backhurst (Editor of *Scopus* and Ringing Organizer - Nairobi), P.L. Britton (Mombasa), Mrs Hazel A. Britton (Nest Record Scheme Organizer - Mombasa), Dr Margaret Carswell (Kampala), Dr A.W. Diamond (Nairobi), A.D. Forbes-Watson (Oxford), Dr J.D. Gerhart (Nairobi), Dr K.M. Howell (Dar es Salaam), C.F. Mann (London), B.S. Meadows (Nairobi), J.F. Reynolds (Nairobi) and D.K. Richards (Dodoma).

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Any references cited should be listed at the end of the contribution following the form used in this issue. *Names of periodicals should be given in full*. A number of works, which are cited frequently, should not be listed under

Continued inside back cover

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FIELD IDENTIFICATION OF KENYA GREENBULS

D.A. Turner & D.A. Zimmerman

The family Pycnonotidae is represented in Kenya by no less than 25 species (Table 1). Because of their generally shy and secretive behaviour in forest habitats, identification of greenbuls in the field is often a very frustrating experience. Apart from the ubiquitous Yellow-vented Bulbul *Pycnonotus barbatus*, which requires no further comment, other members of this family tend to be sadly ignored due to lack of basic field identification aids. The untold frustrations of both resident and visiting ornithologists are an all too familiar story. These have prompted us to offer some guidelines for the field identification of this complex family so typical of forests throughout Africa.

We prefer to discuss the Kakamega and coastal forest populations first, as these two areas contain the largest number of greenbuls in Kenya, before turning to the remaining species on an individual basis.

KAKAMEGA FOREST, WESTERN KENYA

Genus *ANDROPADUS*

No less than seven species within this genus occur in the Kakamega Forest, and this is by far the most difficult group to identify.

| | |
|--------------------------|---------------------------|
| <i>A. ansorgei</i> | Ansorge's Greenbul |
| <i>A. curvirostris</i> | Cameroun Sombre Greenbul |
| <i>A. gracilis</i> | Little Grey Greenbul |
| <i>A. gracilirostris</i> | Slender-billed Greenbul |
| <i>A. latirostris</i> | Yellow Whiskered Greenbul |
| <i>A. masukuensis</i> | Shelley's Greenbul |
| <i>A. virens</i> | Little Greenbul |

| | |
|----------------------------|----------------------|
| <i>ANDROPADUS ANSORGEI</i> | Ansorge's Greenbul |
| <i>A. GRACILIS</i> | Little Grey Greenbul |

It is remarkable that two species so closely resembling each other can be found living alongside. However, whereas *A. ansorgei* is quite common at Kakamega, *A. gracilis* is not.

A. ansorgei appears very small in the field with a short tail, grey throat and gingerish belly and flanks. A small white eye ring is also clearly visible. *A. gracilis* is very similar, and also has a white eye ring, but can be identified by its yellow belly and yellowish-olive flanks. Both species prefer the smaller limbs and branches of trees at the lower and

middle levels and are often found in small parties. *A. ansorgei* is commonly seen in the forest area immediately behind the Kakamega Forest Department headquarters.

SOFT PART COLOURS

- A. ansorgei* IRIS: Brown, occasionally reddish-brown.
 BILL: (Males) Black to brownish-horn colour with black base. (Females) Dull blackish-brown.
 FEET: (Males) Greyish-olive or dark olive.
 (Females) Greenish-grey.
- A. gracilis* IRIS: Dark brown. BILL: Black to blackish-brown.
 FEET: Dull greyish-olive.

ANDROPADUS CURVIROSTRIS Cameroun Sombre Greenbul

Rather difficult to separate from the Little Greenbul *A. virens*, but generally more frequently seen than that species, and often found in undergrowth as well as at the middle levels of fairly tall leafy shrubs. It is particularly fond of foraging in higher shrubs and tangles of vines that extend up into the lowest trees, though rarely going above 10 m. When seen well the slender black bill easily distinguishes it from the Little Greenbul, while the grey head and throat contrast slightly against the olive-grey underparts. A greyish white eye ring is clearly visible in the field, and this is not present in the Little Greenbul.

SOFT PART COLOURS

- IRIS: Bright rusty brown. BILL: Black but in immatures some olive or yellow at tip.
FEET: Olive-green or dark greenish-grey.

ANDROPADUS GRACILIROSTRIS Slender-billed Greenbul

A rather slender greenbul, easily identified by its contrasting olive-green upperparts and all grey underparts. It has a much longer tail and bill than the preceding species, and shows a marked preference for the canopy and upper levels of tall fruiting trees, often perching on the topmost leaves.

SOFT PART COLOURS

- IRIS: Brick red to reddish-brown. BILL: Black
FEET: Black.

ANDROPADUS LATIROSTRIS Yellow-whiskered Greenbul

The commonest and most vocal greenbul at Kakamega. Adult birds are easily identified by the two creamy yellow malar streaks on either side of the throat. These are lacking in immatures, which closely resemble Little Greenbuls *A. virens*, though in the hand a dusky malar streak is visible. This is a rather shy species, frequenting undergrowth, creepers and any fruiting trees, but its constant chattering song, delivered in short bursts, is one of the dominant

TABLE 1 The distribution of Kenya Greenbuls

| Genus | Species | Western Kenya including Kakamega Forest | Central Highlands including Nairobi area | Southern Kenya including Chyulus and Taita | Southern Kenya including Sokoke Forest |
|-----------------------|-----------------------|---|--|--|--|
| <i>Andropadus</i> | <i>ansorgei</i> | x | | | |
| | <i>curvirostris</i> | x | | | |
| | <i>gracilis</i> | x | | | |
| | <i>gracilirostris</i> | | x | | |
| | <i>importunus</i> | x | | x | x |
| | <i>latirostris</i> | x | x | | |
| | <i>masukuensis</i> | x | | | |
| | <i>milanjensis</i> | | | x | |
| | <i>tephrolaemus</i> | x | x | x | |
| | <i>virens</i> | x | | | x |
| <i>Baeopogon</i> | <i>indicator</i> | x | | | |
| <i>Bleda</i> | <i>syndactyla</i> | x | | | |
| <i>Chlorocichla</i> | <i>flavicollis</i> | x | | | |
| | <i>flaviventris</i> | | x | x | x |
| | <i>laetissima</i> | x | | | |
| <i>Nicator</i> | <i>chloris</i> | | | x | x |
| <i>Phyllastrephus</i> | <i>baumanni</i> | x | | | |
| | <i>cerviniventris</i> | | x | x | |
| | <i>debilis</i> | | | | x |
| | <i>fischeri</i> | | | x ? | x |
| | <i>flavostratus</i> | | | x | |
| | <i>placidus</i> | x | x | x | x |
| | <i>streptitans</i> | x | x | x | x |
| <i>Pycnonotus</i> | <i>terrestris</i> | | | x | |
| | <i>barbatus</i> | x | x | x | x |
| Total | 25 | 16 | 9 | 10-11 | 9 |

bird calls throughout the Kakamega Forest.

SOFT PART COLOURS

IRIS: Dark brown. BILL: Brownish black with pale tip, but in juveniles more yellowish or orange-yellow. corners of mouth yellow. FEET: Generally dark brownish-orange to yellowish-brown, but in juveniles and immatures bright orange or orange-yellow.

ANDROPADUS MASUKUENSIS Shelley's Greenbul

A fairly common species, easily recognisable by its all grey head, which contrasts sharply against an otherwise bright olive-green plumage. A small greyish-white eye ring is clearly visible at close range, or in the hand. A striking field character is its woodpecker-like habit of clinging to tree trunks while foraging for food.

SOFT PART COLOURS

IRIS: Brown or reddish-brown. BILL: Dark brown or slaty black above, blue-grey below. FEET: Slaty blue or bluish-grey to green or grey-green with underside of toes yellowish-olive.

ANDROPADUS VIRENS Little Greenbul

Small size, short stubby bill and an all dull olive green plumage are its only field characteristics. This is generally a shy, skulking species, keeping well hidden in thickets and undergrowth. Zimmerman (1972) found it to be more common in secondary growth at Kakamega than in primary forest. Unless seen well, or in the hand, adults are difficult to distinguish from *A. curvirostris*, while immatures are very similar to immature *A. latirostris* (as mentioned under those species).

SOFT PART COLOURS

IRIS: Dull greyish-brown. BILL: Blackish, though browner below with corners of mouth bright yellow. FEET: Yellowish-orange to yellowish-brown in adults though dull brown or yellowish brown in juveniles. (NB. very similar colour to *A. latirostris*)

Genus *PHYLLASTREPHUS*

Two species are found at Kakamega, and although both inhabit the same parts of the forest, Zimmerman (1972) found that *P. baumanni hypochloris* was primarily a fruit eater while *P. placidus sucosus* was almost entirely insectivorous.

| | |
|--------------------|---------------------|
| <i>P. baumanni</i> | Toro Olive Greenbul |
| <i>P. placidus</i> | Placid Greenbul |

PHYLLASTREPHUS BAUMANNI Toro Olive Greenbul

The form *hypochloris* is a small shy undergrowth species with a marked superficial resemblance to *Andropadus curvirostris*. It is generally uncommon at Kakamega and difficult to identify unless in the hand, when the longer bill and yellowish and grey streaking on underparts are clearly visible. At a distance it resembles a miniature *A. gracilirostris* but occurs in undergrowth not canopy. Zimmerman (1972) found that immature birds were somewhat lighter below than adults, with the plumulaceous crissum feathers pale rufous not yellowish-olive as in adults. Possibly worthy of specific status once more is known of the nominate *baumanni* in West Africa.

SOFT PART COLOURS

IRIS: (Males) Brownish-orange. (Females) Russet brown, though brown in immature females.
 BILL: (Males) Dull black above, below similar but with gonys pale flesh coloured becoming yellow at extreme tip. Gape a dull yellowish flesh colour.
 (Females) Brownish-black gape and tomia olive to yellowish horn colour with gonys pale olive-flesh. Immature females dark brown with yellow tomia and tip. FEET: From greenish-grey to bluish-grey. Toes more blue-grey above and dull yellow beneath, claws brown. Immature females pale bluish with edges of scutes, claws and ventral side of toes dull pale yellow.

(Zimmerman 1972)

PHYLLASTREPHUS PLACIDUS Placid Greenbul

separated from *fischeri* and *cabanisi* by Dowsett (1972), this species is fairly common throughout Kakamega Forest, and easily identified by its russet tail and pale yellow throat sharply contrasting against an olive breast and bright yellow belly. Immature birds have very yellow underparts. The species is generally found in small family parties. It prefers the undergrowth and lower levels, and occurs only infrequently above eye level.

SOFT PART COLOURS

IRIS: Pale grey often with faint olive tinge while more brownish-grey in juveniles.
 BILL: Dusky horn-coloured, though more bluish-grey towards the base of the mandible. FEET: Bright blue-grey or greyish-blue. Underside of toes yellow or yellowish-olive.

The remaining three species occurring at Kakamega are all fairly common and easily identified.

BAEOPOGON INDICATOR Honeyguide Greenbul

Although this species looks and flies like a honeyguide, clearly showing all white outer tail feathers, it is a much darker and more robust look-

ing bird than the honeyguides. It is also more of a canopy and upper level species, and but for its loud and distinctive whistling song would frequently be overlooked. When seen well, the white or greyish white eye clearly distinguishes it from all honeyguides and other greenbuls.

SOFT PART COLOURS

IRIS: (Males) Creamy white or yellowish-white.
Dull greyish-buff in immature males.
(Females) Greyish-white to grey, often with a faint olive-brown tinge. BILL: (Males) Dark grey to blackish. (Females) Dark leaden grey.
FEET: (Male) Dark bluish-grey. (Females) Dark leaden grey

BLEDA SYNDACTYLA Bristle Bill

This, the largest greenbul, is easily identified by its size, deep russet tail, bright yellow underparts and bluish-white patch around each eye. It is rather a shy species, but is often found associating with ant columns.

SOFT PART COLOURS

IRIS: (Males) Dark brown to dark red. (Females) Dark brown. (Immatures) Dark brown. Orbital skin is bluish-white or pale blue in adults; yellowish in immatures. BILL: (Adults) Maxilla blackish, mandible light blue-grey. (Immatures) Blackish at base, yellow at tip, the yellow extending along both tomia. FEET: (Adults) Pinkish-grey. (Immatures) Dull yellowish.

(Chapin 1953)

CHLOROCICHLA LAETISSIMA Joyful Greenbul

A large brightly coloured greenbul, appearing more or less uniformly yellow below, and not likely to be confused with any other species. It normally occurs in small noisy parties in both thick forest and forest edge habitats. Its presence is usually announced by a pleasant bubbling chatter.

SOFT PART COLOURS

IRIS: Bright russet. BILL: Slaty black fading to brown along tomia and at tip. FEET: Greenish-grey.

KENYA COASTAL FORESTS

Genus *PHYLLASTREPHUS*

Three forest species within this genus occur alongside each other in the Arabuku-Soko Forest near Malindi, and possibly also in other

coastal forests. Two of these (*fischeri* and *terrestris*) are very much alike, and can only be positively identified by their eye colour.

| | |
|----------------------|----------------------------------|
| <i>P. debilis</i> | Smaller Yellow-streaked Greenbul |
| <i>P. fischeri</i> | Fischer's Greenbul |
| <i>P. terrestris</i> | Brownbul |

PHYLLASTREPHUS DEBILIS Smaller Yellow-streaked Greenbul

The smallest greenbul, almost warbler sized, and easily recognisable by its bright olive-green upperparts, contrasting sharply against a grey head, and greyish-white underparts clearly streaked with yellow. It is fairly common throughout most coastal forest areas, and in particular the Soko Forest, where it occurs in the lower shrubs and undergrowth, and is often a member of mixed bird parties.

SOFT PART COLOURS

IRIS: Creamy white to yellowish-white, dark in immatures. BILL: Greyish horn coloured
FEET: Brownish-black.

PHYLLASTREPHUS FISCHERI Fischer's Greenbul

A medium sized greenbul with olive brown upperparts and creamy white underparts. Not uncommon in the Soko Forest, where it is normally found in small parties on or close to the ground. Its most notable field character is the creamy white eye, which easily distinguishes it from the following species.

SOFT PART COLOURS

IRIS: Creamy white, grey in immatures.
BILL: Black, fairly long (Males 15 mm, Females 13-14 mm). FEET: Blue-grey.

OTHER COASTAL FOREST GREENBULS

ANDROPADUS VIRENS ZOMBENSIS Little greenbul

As already described under species occurring at Kakamega, an extremely shy and secretive bird keeping well hidden in thickets and undergrowth. Very common in forests to the south of Mombasa, including the Shimba Hills National Park, but as yet unrecorded from Soko Forest (Britton & Zimmerman in press). Although it has few distinctive characters, its short stubby tail, uniform olive-green upperparts and greyish-olive underparts should suffice for identification at close range in the field, or in the hand. It could possibly be confused with immature Zanzibar Sombre Greenbuls *A. importunis*, but the latter is not a forest species and is therefore unlikely to occur in the same habitat as *virens*.

SOFT PART COLOURS

IRIS: Dark brownish. BILL: Blackish
FEET: Bright yellowish-brown.

CHLOROCICHLA FLAVIVENTRIS Yellow-bellied Greenbul

A large greenbul (21.5 cm), dark olive-brown above, yellow below. Its light coloured upper eyelid is conspicuous in the field. This, against the dark lower part of the head and crown, gives the appearance of a dark patch above the eye. This is a common and widespread bird throughout the coastal forests, occurring either singly or in pairs, and occasionally with mixed bird parties.

SOFT PART COLOURS

IRIS: Dark red, fudge-brown in immatures.

BILL: Blackish. FEET: slaty-grey.

NICATOR CHLORIS Nicator

The eastern form *N.c.gularis* considered by many authorities to be worthy of specific status, is another large greenbul, easily recognisable by its heavy shrike-like bill, loud and distinctive song, and large creamy spots on the wing coverts. This is a very shy and secretive species, which usually occurs singly or in pairs, in undergrowth and dense forest vegetation. It is common in Sokoce and in most other coastal forests.

SOFT PART COLOURS

IRIS: Hazel brown (Jackson 1938 comments that the female has a white spot in front of the eye with no yellow eyelids, and is noticeably smaller). BILL: Horn coloured or grey-brown. FEET: Slaty blue-grey.

REMAINING GREENBULS OCCURRING IN KENYA

Genus *ANDROPADUS**ANDROPADUS IMPORTUNIS* Zanzibar Sombre Greenbul

Although a rather dull looking bird, locally abundant in coastal thickets and non-forested areas from Shimoni to Lamu, where it is frequently seen perched on bushes or telegraph wires. Adults of the eastern coastal race *insularis* are easily recognised by their pale yellow eye, but young birds are dark eyed. Further inland, a central Kenya race *frickii*, characterised by a prominent yellow eye ring, has been recorded locally in highland areas from the Ndoto Mountains south to the Thika area.

SOFT PART COLOURS (*A. importunis insularis*)

IRIS: Pale yellow in adults, dark brown in immatures. BILL: Black. FEET: Dark olive-brown.

ANDROPADUS MILANJENSIS Striped-cheeked Greenbul

A forest edge bird that extends into Kenya from Tanzania in the Taita and Chyulu Hills. Easily identified by its dull golden-yellow plumage with a distinctive dark cheek patch on the sides of the face, pale coloured eyes are clearly noticeable at close range.

SOFT PART COLOURS

IRIS: Pale grey. BILL: Black. FEET: Brown
or olive-brown.

ANDROPADUS TEPHROLAEMUS Mountain Greenbul

The race *kikuyuensis* is a common species of montane forests throughout central Kenya from 1850 - 3000 m. It is easily recognisable by its bluish-grey head and chest contrasting sharply with its bright yellowish-green belly and upperparts. A thin greyish-white eye ring is clearly visible at close range. Particularly common on the Aberdare Mountains and Mt. Kenya, while in western Kenya it occurs on Mt. Elgon. The north-eastern Tanzania race *usambarae* has recently been recorded from the Taita Hills in south-eastern Kenya (Turner 1979).

SOFT PART COLOURS (*A. tephrolaemus kikuyuensis*)

IRIS: Brown to reddish-brown with greyish eye
ring. BILL: Black. FEET: Greenish-grey to
bluish-grey.

Genus **PHYLLASTREPHUS****PHYLLASTREPHUS CERVINIVENTRIS** Grey-Olive Greenbul

A local and uncommon species known only from the Kitovu Forest near Taveta, and from the Thika area. Shy and secretive in habits, it occurs in small parties in thick undergrowth in ground water forest, and although a species with few field characters, its greyish-white or pinkish-grey feet are quite conspicuous in the field.

SOFT PART COLOURS

IRIS: Orange-yellow to golden-brown.
BILL: Horn coloured. FEET: Pinkish-grey
or greyish-white.

PHYLLASTREPHUS FLAVOSTRIATUS Yellow-streaked Greenbul

A large, pale coloured, long-billed greenbul with the habit of constantly flicking or raising a wing while foraging. Although the race *tenuirostris* is common in montane forests throughout eastern and north-eastern Tanzania, the only known record from Kenya is a female collected from Mt. Kasigau, south of Voi, on 18 November 1938 (Rand 1958). Its current status in Kenya is unknown, and there are no recent records.

SOFT PART COLOURS

IRIS: Dull grey tinged with olive.
BILL: Blackish-brown. FEET: Bluish-grey.

(Chapin 1953)

PHYLLASTREPHUS STREPITANS Northern Brownbul

Very similar to the Brownbul *P. terrestris*, but with decidedly more rufous in the plumage, particularly in the wings and tail, and with a dark, wine-coloured eye. Constantly flicks its wings while foraging and when perched. Although it occurs occasionally in forested areas, it is by far more generally found in thicket and dense scrub. It is generally encountered in small noisy family parties, and ranges in low lying country from north-western Kenya to the coast, where it is common.

SOFT PART COLOURS

IRIS: Dark wine-coloured, duller in immatures. BILL: Black, darker than *P. terrestris*. FEET: Deep blue-grey.

Genus *CHLOROCICHLA**CHLOROCICHLA FLAVICOLLIS* Yellow-throated Leaf Love

A rather robust species, occurring locally in the Lake Victoria basin. In Nyanza Province it is fairly common in cultivated plots and in thick *Lantana* scrub. It is normally found in noisy family parties on or close to the ground, its best field characteristic being its habit of puffing out its pale yellow throat feathers, which contrast sharply against its darker head and underparts. Its harsh rasping call note is also very distinctive.

SOFT PART COLOURS

IRIS: Dull yellowish to light brown.
BILL: Black. FEET: Brownish-grey

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APPENDIX 1 Identification guide to the Greenbuls of Western Kenya

FOREST SPECIES

1. UNDERPARTS YELLOW OR YELLOWISH

- a) Tail olive, concolor with back, underparts bright golden or olive-yellow. Usually a middle level to canopy species. JOYFUL GREENBUL

b) Tail brownish or rufous; undergrowth species

- i) Orbital skin bare, bluish-white; throat bright yellow, tail bright rufous. BRISTLE BILL

- ii) Orbital area feathered; throat pale yellow; tail reddish-brown PLACID GREENBUL

- (Immatures with very yellow underparts) PLACID GREENBUL
(*P.p. sucosus*)

2. UNDERPARTS BASICALLY GREY OR GREYISH OLIVE

- a) Underparts plain grey contrasting sharply against olive green upperparts. SLENDER-BILLED
GREENBUL

- b) Underparts dark grey but with some olive-yellow streaking. Outer tail feathers white; iris creamy-white to grey. HONEYGUIDE GREENBUL

- c) Underparts greyish with gingerish tone to crissum, lower belly and flanks. Small white eye ring. ANSORGE'S GREENBUL

- d) Underparts greyish olive streaked with yellow; bill long. Undergrowth species. TORO OLIVE GREENBUL

- e) Underparts greyish olive though belly or lower belly yellow to olive yellow. Small white eye ring. LITTLE GREY GREENBUL

3. UNDERPARTS BASICALLY BRIGHT OLIVE GREEN

- a) Head all grey, contrasting sharply against bright olive green plumage. Occurring only at Kakamega SHELLEY'S GREENBUL

- b) Head and throat bluish-grey, also contrasting sharply with bright olive green plumage. Occurring only on Mt. Elgon. . . . MOUNTAIN GREENBUL

4. UNDERPARTS BASICALLY DARK OR DULL OLIVE

- a) Underparts dark olive, contrasting with prominent yellow moustachial streaks. YELLOW-WHISKERED
GREENBUL

- b) Throat slightly paler in contrast to darker breast. Greyish white eye ring CAMEROUN SOMBRE
GREENBUL

5. NON-FOREST SPECIES

- a) Size large. Stout-billed bird with dull yellowish eye. Pale yellow throat contrasting with olive breast; throat feathers often puffed out (normally occurs in family parties) YELLOW-THROATED
LEAF LOVE
- b) Brown or russet brown upperparts. No yellow in plumage at all. Common habit of constantly flicking wing feathers while foraging (normally occurs in small parties NORTHERN BROWNBUL

APPENDIX 2 *Identification guide to the Greenbuls of the Central
Kenya Highlands*

1. UPPERPARTS GREENISH OR OLIVE GREEN

- a) Eye ring yellow. Underparts yellowish ZANZIBAR SOMBRE
GREENBUL
(*A.i. frickii*)
- b) Eye ring greyish-white head and throat
bluish-grey; belly concolor with upperparts . . . MOUNTAIN GREENBUL
(*A.t. kikuyuensis*)
- c) No eye ring present. Underparts all grey. SLENDER-BILLED
GREENBUL
(*A.g. percivali*)

2. UPPERPARTS BROWNISH OR OLIVE BROWN

- a) Gregarious undergrowth species occurring in family parties on or near the ground.
- aa) Tail rufous or russet brown
- i) Throat creamy white and often puffed out . . . PLACID GREENBUL
(*P.p. placidus*)
- ii) Underparts greyish. Feet noticeably
greyish-white or pinkish-grey. GREY OLIVE GREENBUL
- bb) Tail concolor with upperparts
Throat whitish contrasting against darker
underparts. Known only from Meru district . . . BROWNBUL
(*P.t. bensoni*)
- b) Non-gregarious species
- i) Underparts yellowish. Iris dark red. YELLOW-BELLIED
GREENBUL
- ii) Underparts olive contrasting with
prominent yellow moustachial streaks YELLOW-WHISKERED
GREENBUL

APPENDIX 3 Identification guide to the Greenbuls of Southern Kenya

UPPERPARTS BROWNISH OR OLIVE BROWN

a) Gregarious species usually occurring in family parties

aa) Tail rufous or russet brown

i) Underparts creamy yellow. Iris pale greyish.

(Occurring in Taita and Chyulu Hills) PLACID GREENBUL
(*P.p. placidus*)

ii) Underparts greyish. Iris orange-yellow.

Feet greyish-white or pinkish-grey.

(Occurring in Kitovu Forest, Taveta). GREY OLIVE
GREENBUL

ab) Tail generally concolor with upperparts

i) Throat whitish contrasting against darker
underparts. Little or no rufous in plumage.

Iris dark brown. (Known only from Endau Mt.). BROWNBUL

ii) More rufous in wings and tail than the
preceding species. Constantly flicks wings
while foraging. Iris dark wine colour.Bill darker than in Brownbul. (Occurs also
at Endau Mountain. Very difficult to

separate from preceding species). NORTHERN BROWNBUL

b) Non-gregarious species

i) Large size. Underparts pale greyish
streaked yellow. Habit of constantly
raising or flicking a wing while
foraging is very characteristic.(Old record from Kasigau, current
status in Kenya unknown). YELLOW-STREAKED
GREENBULii) Large size. Underparts Yellow. Iris dark red. YELLOW-BELLIED
GREENBUL

2. UPPERPARTS GREEN OR OLIVE GREEN

a) Underparts yellowish. Iris pale yellow in

adults, dark in immatures. ZANZIBAR SOMBRE
GREENBUL

b) Underparts greyish-white. Iris dark.

Creamy yellow spots on wing coverts.

(Occurring at Endau Mountain). EASTERN NICATOR

c) Head all grey. (Known only from Taita Hills) . . . MOUNTAIN GREENBUL

3. All dull golden yellow with dark cheek

patch. (Occurs Taita and Chyulu Hills) STRIPED-CHEEKED
GREENBUL

APPENDIX 4 Identification guide to the Greenbuls of Coastal Kenya

FOREST SPECIES

1. UPPERPARTS GREENISH OR OLIVE GREEN *
 - a) Size very small (wing under 70 mm)
Underparts creamy white streaked yellow. SMALLER YELLOW-STREAKED GREENBUL
 - b) Size small (but wing over 75 mm)
Underparts greyish-olive. Short stubby bill. LITTLE GREENBUL
(A.V. *Zombensis*)
 - c) Large size. Underparts greyish-white;
creamy yellow spots on wing coverts. EASTERN NICATOR
(N.C. *gularis*)
2. UPPERPARTS BROWNISH OR OLIVE BROWN
 - a) Eye colour creamy white. Underparts
creamy white FISCHER'S GREENBUL
 - b) Eye colour brown. Little or no russet
in plumage. Throat whitish contrasting
against darker underparts. BROWNBUL

NON-FOREST SPECIES

- a) Upperparts olive green. Underparts yellowish.
Eye colour pale yellow in adults, dark in
juveniles. ZANZIBAR SOMBRE
GREENBUL
(A.i. *insularis*)
- b) Brown or russet brown upperparts.
Constantly flicks wings while foraging NORTHERN BROWNBUL

NOTE.

The ubiquitous Yellow-vented Bulbul *Pycnonotus barbatus* is omitted from all the above appendices.

LESSER SPOTTED EAGLES *AQUILA POMARINA* IN KENYA DURING
1978/79, WITH COMMENTS ON THE IDENTIFICATION OF THE SPECIES

D.J. Pearson & B.S. Meadows

Observations during the present decade have shown that the vagrant status of the Lesser Spotted Eagle *Aquila pomarina* in Kenya has to be reconsidered. There was only one definite record for the country at the time of the Backhurst, Britton and Mann (1973) review, although there was also a possible record suggestive of a movement *en masse* over the country (Bowles 1967). Published records during the seventies, however, have hinted at a regular southward passage, and a small wintering population in the Rift Valley (Dowsett 1975, Campbell & Campbell 1975, Hopson & Hopson 1975, East Africa Natural History Society 1977, 1978). This picture received further support from a series of observations by the authors and others during the 1978/79 northern winter, including the discovery of at least 20 birds in mid-January at Elementeita. This paper lists the 1978/79 observations, and gives an account of the identification criteria upon which the records were based, since there seems little doubt that Lesser Spotted Eagles have been overlooked as Tawny Eagles *A. rapax* or Steppe Eagles *A. nipalensis* in the past.

RECORDS

Lesser Spotted Eagles seen in Kenya during the 1978/79 season are listed below in chronological order. Birds were seen by one or the other of the authors, apart from the Lake Baringo and Maktau observations which were supplied *in litt.*, with supporting details, by T. Stevensen and D.A. Turner.

- 20 Oct. 1 flying S 30 km W of Narok
- 30 Oct. 1 at Ngulia, Tsavo West National Park
- 30 Oct.-
- 1 Nov. 1 at Lake Baringo
- 8 Nov. 1 near Maktau Gate, Tsavo West National Park
- 11 Nov. 1 Mtito Andei, Tsavo West National Park
- 16 Dec. A group pf 5 and two singles, Lake Nakuru
- 7 Jan. 1 Nairobi National Park
- 12 Jan. 1 5 km S of Nyahururu Falls
- 13 Jan. 3 single individuals Nairobi National Park
- 13 Jan. 16+ Elementeita - attracted as a group to recently
burnt grassland
- 14 Jan. c. 20 Elementeita
- 14 Jan. 1 Gilgil
- 27 Jan. 1 20 km W of Nakuru
- 27 Jan. 1 Ziwa Dam, near Moi's Bridge
- 28 Jan. At least 5 with 30+ Steppe Eagles and several hundred Eur-
asian Black Kites in a movement at Rongai
- 1 Mar. 1 Elementeita in heavy moult (flock of 20 gone)
- 1 Mar. 1 between Njoro and Elburgon, Also in moult
- 11 Apr. 2 together at Nakuru National Park.

The dearth of February records was not due to lack of coverage. During this month, the Rift Valley was crossed by the writers between Longonot and Mau Summit on four occasions, and a return drive was made from Nakuru to Lake Baringo. D.K. Richards has supplied us with details of three 1978/79 records of his own from northern Tanzania. He observed a single bird at Dodoma Airport on 21 October and two following the plough with Steppe Eagles near Arusha on 27 December. He also picked up a dead bird on the Arusha - Moshi road on 31 October.

IDENTIFICATION

The Lesser Spotted Eagles listed above were distinguished from other *Aquila* species on the basis of flight silhouette and plumage characters. Most were seen together with immature Steppe Eagles, or occurred in areas where Steppe were also present. Flight aspects of a typically marked Lesser Spotted are compared with those of an immature Steppe in the sketches overleaf. As regards flight silhouette, four points of difference were found to be useful in separating the two species.

- (i) Both tend to soar and glide on flat wings, slightly bowed at the carpals, but whereas the primary tips are usually slightly upturned or levelled in Steppe, they are usually drooping in Lesser Spotted (see B1 and B2).
- (ii) The wings of Steppe tend to be angled in fast gliding flight with leading primaries flexed back (see C1); those of Lesser Spotted are usually held straighter.
- (iii) The rear edge of the wing is relatively straight in Lesser Spotted (A2 and C2); in Steppe it is typically curved, and shows a marked bulge in the secondary region (A1 and C1).
- (iv) The tail of Lesser Spotted is rather shorter than that of Steppe and tends to look less wedge shaped.

It is difficult to appreciate the smaller size of Lesser Spotted without other species for comparison. However, seen *together* with Steppe at Nakuru and Elementeita, Lesser Spotted were clearly about 10 - 15% less in wingspan.

The plumage of the 1978/79 Lesser Spotted was highly variable, both as regards the extent of paler feathering on the upperparts, and the amount of white marking on the wings and rump. The underbody was generally dark brown, apart from a whitish area under the tail. Some birds showed an inconspicuous broken pale line below at the base of the flight feathers, but the underwing was usually completely dark, with the flight feathers as dark as, or slightly darker than, the underwing coverts. The upper body and head were in some cases entirely dark brown, but a well defined yellowish patch was often visible at the nape. The upper wing coverts were usually paler, contrasting with the dark underparts in flight, and in some birds the entire crown and upper neck, as well as the mantle, were pale buffish brown.

Most birds had prominent white patches on the upperwing at the base of the inner primaries, and a narrow line along the edge of the

greater coverts. In some, however, upper wing markings were reduced to a few pale shaft streaks on the primary bases. Most birds showed a prominent U-shaped white rump patch. In some cases this was reduced in width, buffish rather than white, or absent altogether. A small white patch in the centre of the back was almost always noted.

Two rows of white spots were present on the upper wing coverts of the Baringo bird and two of the birds at Nakuru in December. These were otherwise dark, but with prominent white markings on wing and rump, and were tentatively assumed to have been in their first year. The great majority of birds showed no wing spots. Lighter coloration of the upperparts and reduction of white markings have both been given as characteristics of older birds (Porter et al. 1976). It was therefore intriguing to note that some of the lighter Kenya individuals had very marked wing and rump patches, whereas in some dark birds these were practically absent.

Plumage features used in distinguishing Lesser Spotted Eagles from immature Steppe Eagles were:

- (i) The darker underside, particularly when in combination with lighter upperparts and forewing.
- (ii) The combination of much white on the rump and upperwing, but little or none on the underwing. (Steppe Eagles with white rump and upperwing markings show broad white lines below the wing, along the border of the coverts and along the trailing edge.)
- (iii) The U-shaped, rather narrow white rump, as opposed to the whitish bar usual in the Steppe Eagle.

We did not personally record any adult Steppe Eagles together with Lesser Spotted. These would have been distinguishable, however, on silhouette, and also by lack of white markings above, and by dark (blackish brown) upperparts as well as underparts. The Rift Valley Lesser Spotted were seen in the company of an occasional Tawny Eagle. Although similar in size, the latter were readily distinguished by their paler underparts, their broad buffish rump (young birds) and their flight silhouette - similar to that of Steppe Eagle.

Nostril shape has been given as a character useful in separating Spotted from Tawny/Steppe Eagles (e.g. McLachlan & Liversidge 1978). In the few Rift Valley birds seen perched at a range of less than 30 m, the nostril was usually best described as kidney-shaped. At rather longer range, where visible, it appeared open rather than slit-like.

The difficulty of separating Lesser Spotted Eagles from Greater Spotted Eagles *A. clanga* has been emphasised and discussed by Porter et al. (1976) and by Svensson (1975). Many of the criteria used to separate the 1978/79 birds from Tawny/Steppe Eagles would apply equally to Lesser Spotted and Greater Spotted Eagles. However, all the birds seen singly, and most of those in the winter parties, were either generally mid to pale brown on much of the upperparts, or showed at least pale nape patches and were therefore identified with confidence as Lesser Spotted. Nevertheless, the possible presence of the odd

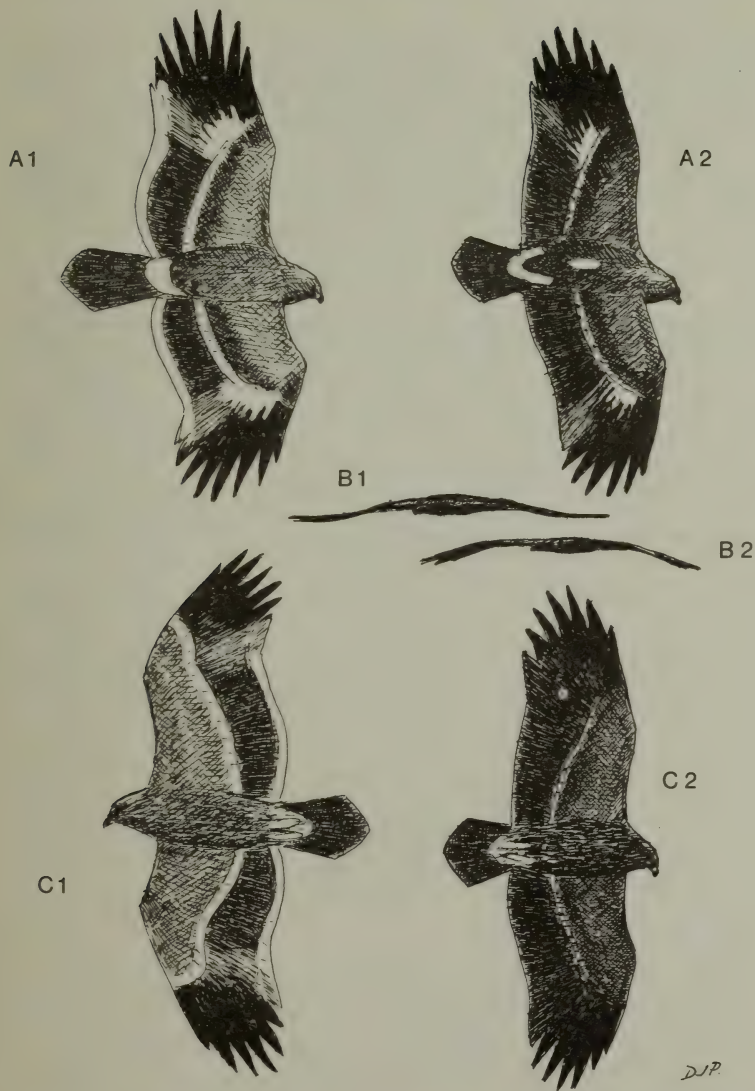


Fig.1 Flight aspects of a typically marked (presumed immature) Lesser Spotted Eagle (A2, B2, C2) compared with immature Steppe Eagle (A1, B1, C1)

Greater Spotted amongst darker individuals in the Rift Valley parties cannot be discounted.

DISCUSSION

The pattern of occurrence of the Lesser Spotted Eagle in Kenya during the past seven years seems to reflect the status established for the Steppe Eagle, i.e. a relatively widespread passage from October to December and more local wintering concentrated particularly in the Rift Valley highlands (B.S.M. unpublished). Numbers of Lesser Spotted actually seen from the ground during passage are probably related to weather conditions, for several recent November records have been after heavy rain. The great majority of Steppe Eagles migrating to southern Africa would appear to pass through Kenya, for the species is scarce over most of Uganda. Lesser Spotted, which also winter commonly in the southern tropics, must clearly overfly most of East Africa in autumn, but whether passage is concentrated to the east or west of Lake Victoria is not known. Recent observations have revealed a regular spring passage through Rwanda where as many as 130 birds a year have been recorded moving northwards during March (Vande Weghe 1978). Small parties have also been noted in spring in Ruwenzori National Park, southwest Uganda (M.P.L. Fogden, pers. comm.). There are four October-November Rwanda sightings involving one to two birds each, but autumn records from Uganda are lacking.

The winter records of Lesser Spotted Eagle from the Kenyan Rift Valley have been from the open plains and farmland frequented also by Steppe Eagles. However, although the two species have been recorded together, and even seen feeding at the same carrion, a slight difference in habitat preference has been evident. Lesser Spotted have been confined mainly to the vicinity of water, particularly Lakes Nakuru and Ol Bolossat, and were notably absent during 1978/79 from drier grassland localities where Steppe Eagles were common. At Elementeita, on 14 January 1979, it was noted that the 20 Lesser Spotted kept together in a distinct flock, and did not associate with a party of c. 30 Steppe Eagles about a kilometre away.

Wintering numbers of Steppe Eagles vary considerably in Kenya from year to year. Similar fluctuation may prove to apply in the case of the smaller numbers of Lesser Spotted. The unusual numbers of Lesser Spotted recorded early in 1979 may have been associated with the much wetter than average conditions at this time, and the fact that the rains had apparently failed in southern Africa.

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NOTES ON THE BIRDS OF LENGETIA FARM, MAU NAROK
FROM THE DIARIES OF THE LATE P.H.B. SESSIONS
P.L. Britton

In his paper on the birds of Lengetia Farm, in the western highlands of Kenya, Sessions (1966) summarised five years of almost daily observations. These regular notes from diverse habitats at c.3000 m (9000-10000 ft.) were continued until 1975, and in happier circumstances would no doubt have appeared as an addendum. Rather than see these extensive notes wasted, Pat's widow Vanda asked me to select and publish any interesting records. As space is limited I have included only those 40 species (marked *) unrecorded by Sessions (1966) and a few other miscellaneous items of particular interest.

SYSTEMATIC LIST

- * *PLEGADIS FALCINELLUS* Glossy Ibis
Three on 19 May 1967 and one on 30 January 1972.

ANAS CAPENSIS Cape Wigeon
Two on 13 April 1966 and 9 June 1972, and one on 21 September 1968.
These provide further evidence of wandering to fresh water.

ANAS CLYPEATA Shoveler
Dates extend from 17 October to 18 May.
- * *ANAS CRECCA* Teal
Females, with full descriptions, 4 October 1970 and 18 November 1970.

ANAS PENELOPE Wigeon
Male, 30 January 1971.

NETTA ERYTHROPTALMA Southern Pochard
Small numbers, August to March.
- * *NETTAPUS AURITUS* Pygmy Goose
Male and Female, 10 January 1970.
- * *THALASSORNIS LEUCONOTUS* White-backed Duck
One, 16-20 November 1966; two on 2 November 1970 and 9 May 1971.
- * *AQUILA WAHLBERGI* Wahlberg's Eagle
One, 9 February 1972.
- * *AVICEDA CUCULOIDES* Cuckoo Falcon
One, 4 July 1970.
- * *KAUPIFALCO MONOGRAMMICUS* Lizard Buzzard
One, 29 September 1973.

FALCO AMURENSIS Eastern Red-footed Falcon
All records are listed as none have been given with individual dates previously: adult males on 15 November 1962, 31 March 1965, 26 April 1967 (3); a sub-adult male in December 1963; a sub-adult male with a female on 14 December 1974.
- * *FALCO PEREGRINUS* Peregrine Falcon
Sessions (1966) listed this species in square brackets, but later

had definite sightings on 2 January 1970, 17 April 1972, 7 June 1973 and 5 September 1974. The first of these was seen at rest. Being larger and stockier than others, with underparts described as 'pinkish buff only lightly barred' and a dark head, it was probably a *Palae-arctic* migrant of the race *calidus*.

- * *CREX CREX* Corncrake
One, 30 November 1967.
 - * *PORPHYRIO PORPHYRIO* Purple Gallinule
one, 1 May - 14 June 1969
 - * *RALLUS CAERULESCENS* African Water Rail
One, 22 November 1973
 - * *ROSTRATULA BENGHALENSIS* Painted Snipe
One, 9 August 1971.
 - * *VANELLUS ARMATUS* Blacksmith Plover
Singles, 25 December 1969, 27 February 1972, and two on 6 July 1972.
 - * *VANELLUS LUGUBRIS* Senegal Plover
One, 21 January 1967.
 - * *VANELLUS SPINOSUS* Spur-winged Plover
One, very tame, 29 November 1966.
- GALLINAGO MEDIA* Great Snipe
Dates not given in full previously: 15 December 1960, 22 February 1962, 8 March 1962.
- TRINGA OCHROPUS* Green Sandpiper
Early date: 12 August 1965, 16 August 1967 (3), 18 July 1971 (3), 7 August 1973.
- * *COLUMBA GUINEA* Speckled Pigeon
Up to 6, 21 January 1973 - 3 January 1974.
- STREPTOPELIA CAPICOLA* Ring-necked Dove
Sessions (1966) listed this as a recent colonist from the east, breeding in small numbers, whereas the Dusky Turtle Dove *S. lugens* was a very common breeding resident, sometimes congregating in flocks of 100-200. By 1975 *capicola* outnumbered *lugens* all over Mau Narok.
- * *CHRYSOCCYX KLAAS* Klaas' Cuckoo
Singles, 20 August 1974, 8 December 1974, 19 December 1974.
 - * *CUCULUS SOLITARIUS* Red-chested Cuckoo
Singles, 11 April 1966, 30 April 1967, 30 September 1968.
- CAPRIMULGUS EUROPAEUS* Eurasian Nightjar
It may be mainly a spring passage migrant as evidenced by birds examined in the hand on 29 March 1961, 2 April 1965, 9 March 1971 and 15 March 1974.
- * *APUS AFFINUS* Little Swift
One, 6 January 1974.

APALODERMA NARINA Narina's Trogon
Sessions (1966) did not record it after March 1961; subsequently

seen on 20 December 1966, 24 October 1968, 15 and 30 April 1972.

- * *TRACHYLAEMUS PURPURATUS* Yellow-billed Barbet
One shot on a neighbouring farm at Mau Narok by Ian Philip on
1 September 1968 was examined by Sessions.
- * *ANDROPADUS LATIROSTRIS* Yellow-whiskered Greenbul
First recorded on 28 December 1966 and subsequently on several
dates.
- * *MONTICOLA SAXATILIS* Rock Thrush
Male, 5 April 1973.
- * *OENANTHE ISABELLINA* Isabelline Wheatear
One, 2 November 1967.
- * *SAXICOLA RUBETRA* Whinchat
17 December 1966, 3 April 1967, 8 October 1967, 12 October 1967,
25 February 1968, 7 March 1969, 29 September 1972, 30 September 1975.
- PHYLLOSCOPUS COLLYBITA* Chiffchaff
Singing on 30 December 1967, 11 February 1973(2), 19 February 1974
(several), 29 March 1974, 12 February 1975.
- * *SYLVIA BORIN* Garden Warbler
One 29 March 1974.
- * *SYLVIA COMMUNIS* Whitethroat
Singles, 1 December 1968, 24 March 1971.
- * *BATIS MOLITOR* Chin-spot Batis
One, 24 December 1974
- * *MOTACILLA ALBA* White Wagtail
On a neighbouring farm on 14 February 1971, and 23 January - 1 Feb-
ruary 1973 (2).
- * *MALACONOTUS BLANCHOTI* Grey-headed Bush Shrike
One, 2 February 1974.
- * *MALACONOTUS SULPHUREOPECTUS* Sulphur-breasted Bush Shrike
One, 1 December 1974.
- * *LANIUS EXCUBITORIUS* Grey-backed Fiscal
One, 7 April 1969
- * *SPREO SUPERBUS* Superb Starling
One, 30 November 1974; an earlier record at shops in Mau Narok on
5 April 1965 was not included by Sessions (1966).
- * *NECTARINIA OLIVACEA* Olive Sunbird
One singing on 16 March 1972.
- * *NECTARINIA VENUSTA* Variable Sunbird
Male in full breeding dress, 22 February - 11 March 1970.
- * *PLOCEUS RUBIGINOSUS* Chestnut Weaver
Male in garden, June 1972.
- * *PASSER IAGOENSIS* Kenya Rufous Sparrow
First recorded on 20 May 1972; bred successfully in June 1972,
May 1973 and February 1974.

- * *VIDUA MACROURA* Pin-tailed Whydah
Two males in full breeding plumage on 5 October 1973.
- * *VIDUA PARADISAEA* Long-tailed Paradise Whydah
Undated, on another farm at Mau Narok.
- * *LONCHURA CUCULLATA* Bronze Mannikin
One 22 December 1971.
- * *EMBERIZA FLAVIVENTRIS* Golden-breasted Bunting
One, 21 February 1967

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P.L. Britton, Shimo la Tewa School, Box 90163, Mombasa

(Received 27 April 1979)

SHORT COMMUNICATIONS

PHALAROPES IN COASTAL KENYA Phalaropes *Phalaropus* sp. are reported by fishing enthusiasts from various localities between Shimoni and Malindi each November and March, feeding in small parties in and around floating seaweed beyond the reef. Parties off Kilifi in December 1973 were thought to be Red-necked Phalaropes *P. lobatus* (Cunningham-van Someren 1974), and a single *lobatus* was seen on the reef at Diani on 25 December 1966 (D.J. Pearson in litt.). Inland in eastern Africa *lobatus* far outnumbers the Grey Phalarope *P. fulicarius*, occurring annually in flocks of up to 30 at Lake Turkana (Hopson & Hopson 1975) and rather erratically in smaller numbers elsewhere (see Backhurst, Britton & Mann 1973, Ash & Ashford 1977).

On 1 March 1979 we found a freshly dead *lobatus* at Ras Iwetine (near Mombasa), washed up on the incoming tide. Like birds seen at sea during March, there was no sign of breeding plumage. Moults were suspended, with the eight innermost primaries renewed on both wings: weight 36.2 g, wing 110 mm. On 4 March 1979, while fishing off Diani, Miles Coverdale, Greagh Mausell and Sheelagh Mausell saw about 50 *lobatus* in small parties at ranges down to 3 m, noting their diagnostic needle-fine bills.

On present evidence it is reasonable to assume that most or all the phalaropes seen annually in coastal East Africa are *lobatus*, whereas *fulicarius* can be no more than a vagrant.

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SOMALI BEE-EATER *MEROPS REVOILII* IN TSAVO WEST During a recent trip through Tsavo West National Park, I was interested to observe a pair of Somali Bee-eaters within 400 m of the Tsavo River entrance gate to the National Park, to the west of the main Nairobi - Mombasa road.

This species is known to have extended its range to the south over the past decade and a half (Lack et al. in press). My own first Tsavo East observations of the bird date back to August 1966 when I noted its previously unrecorded presence in the Yatta gap, north of the Galana River and Lugard's Falls. Subsequent sightings have been made between

the Galana River and Voi (East African Bird Report 1977. Lack et al. in press).

The pair I watched were observed on the afternoon of 25 February 1979 and were engaged in aerial insect catching. As is typical of the species this pursuit was frequently conducted from different perches, often 20 - 30 m apart.

The increased extension of the Somali Bee-eater's range is of interest and appears to have followed elephant habitat destruction which has caused the opening up of previously more wooded areas. My own conjecture for these extensions had been linked to the prevailing drier conditions to which Tsavo had been subjected, and this appeared to have been borne out by observations of Somali Bee-eaters in drought conditions in the Buffalo Springs area of the Isiolo Game Reserve. However, with the past eighteen months of good rainfall, I tend to agree with L.S.C. Parker (pers. comm.) that, at least in Tsavo, the increase or extension of range of this species is more likely to be attributable to the recent opening up of suitable habitat than to the arid conditions.

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A.L. Archer, Wildlife Services Ltd., Box 30678, Nairobi.

Received 20 March 1979

There is a recent unpublished record of two Somali Bee-eaters seen along the Tsavo River, 8 km south of the Mombasa road on 1 March 1976 by D.J. Pearson.

Ed.

RIVER WARBLERS IN SONG IN KENYA River Warblers *Locustella fluviatilis* occur annually on passage in late November/December in southeast Kenya. Numbers recorded away from Ngulia Lodge are small however, for this is an unobtrusive species of low thicket and herbage. Most birds have been located by their call, a persistent repeated 'chick-chick-chick'. Whilst watching a River Warbler emerging at the top of a small bush at Mito Andei on 9 December 1978 GJJ was surprised to hear and see it deliver a short burst of song, a jangling 'zi-zi-zi-zi-zi-zi . . .', identical to that with which he was acquainted on the Central European breeding grounds. The same song was heard by both of us from four sites along a few hundred metres of a small river valley immediately west of Mito Andei at 0900-1000 h on 12 December. We were eventually able to obtain a view of one of the birds singing from the bottom of a thick bush. Bursts of song lasted for several seconds, the basic syllable being repeated continuously, four to five times a second. At the end of December 1978 a few River Warblers were temporarily resident in the bush near Ngulia Lodge. At 0700-0900 h on 28 and 29

on 28 and 29 December birds were repeatedly heard by DJP singing from two patches of thicket in particular, and one of these was seen.

River Warbler song does not appear to have been previously recorded in Africa. However, because of its resemblance to certain insect noises, and a marked similarity to the jangling display calling of some *Euplectes* species, it has probably often been overlooked. When not engaged in active moult, most other Palaearctic warblers sing quite vigorously in winter quarters and at passage stopover sites in East Africa. Now that it has been recognised, song may prove a useful aid in locating River Warblers in Kenya and Tanzania in future.

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NOTICES

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1979 costs for 25 - 100 copies will be US\$ 14.00, £7.00 or Shs.100/- per double page (both sides), and US\$8.00, £4.00 or Shs.55/- per single page (one side only). Costs are inclusive of surface mail delivery. For AIR MAIL delivery, postage will be extra.

For example. The paper on Bee-eaters by Hegner *et al.* in *Scopus* 3 (1), would cost US\$ 36 or Shs. 225/- for 25 -100 copies by surface mail. The Ngulia paper in *Scopus* 3 (1) would cost Shs. 355/- for 25 - 100 copies.

SEABIRD WATCH

During July and August 1979, Dr C.J. Feare will be ringing, colour ringing and dyeing seabirds (mainly gulls and terns) and Crab Plovers on the coast of Arabia. The aim of this is to attempt to trace the post-breeding dispersal of the seabirds and to relate this to the geographical distribution of ticks that parasitize the birds. Would all visitors to the East African coast and islands of the western Indian Ocean please keep a look out for ringed and dyed seabirds and report any sightings *Direct* to Dr C.J. Feare, Greenfields, The Street, Ewhurst, Surrey, England.

Continued from inside front cover

'References'; the name(s) of the author(s) and date(s) of publication should be given in the text in the normal way. A list of the works concerned is given below.

Observers are asked to send in records of birds for inclusion in the annual East African bird report issue. Records which appear in the *National Museums of Kenya Department of Ornithology Newsletter* will be reviewed for the annual report but, in the case of rare birds or birds showing an extension of range, full details supporting the record should be submitted, whether the record is sent to the *Newsletter* or *Scopus* - this will save correspondence later on.

All contributions should be sent to Dr D.J. Pearson, Department of Biochemistry, University of Nairobi, Box 30197, Nairobi, Kenya.

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Continued inside back cover

SCOPUS

OBSERVATIONS ON HINDE'S BABBLER *TURDOIDES HINDEI*

W.J. Plumb

Little has been recorded of Hinde's Babbler *Turdoides hindei* since the type specimen was described from Athi River by Sharpe in 1900. Literature on the species is sparse and controversial, even the bird's specific status being questioned. Sclater (1930) listed *hindei* as "possibly the juvenile plumage of *T. hypoleucos*" - the Northern Pied Babbler. Van-Someren (1932) showed that there was no connexion between the two birds since he had reared *hypoleucos* from nestlings to adults and at no time did they resemble *hindei*. A description of the juvenile plumage of *hindei* which appeared in Friedmann (1930) showed that it resembled the adult. An important and apparently overlooked contribution was that of Blencowe (1960), a short note to which further reference is made below. The present paper summarizes what is known of Hinde's Babbler and suggests its possible relationships with other members of the genus.

THE QUESTION OF HYBRIDIZATION

Hall & Moreau (1970) suggested that since no two individuals are alike, Hinde's Babbler may represent a hybrid population, and that since *T. hypoleucos* and the Arrow-marked Babbler *T. jardinei* are the only other babblers to have been collected from the range of Hinde's Babbler, these species would be the obvious source for such a hybrid population. It has been said that Hinde's Babbler shows some characteristics of both these species. Observations on *hindei* both in the field and as museum specimens make it clear that it is, in fact, a good species. The specific features of *hindei* are given below where it is compared with *hypoleucos* and *jardinei*.

MEASUREMENTS

Turner (1977a) stated that *hindei* is larger than either *hypoleucos* or *jardinei* although he gave no measurements. Mackworth-Praed & Grant (1960) gave the following wing-lengths, those of *hindei* presumably taken from Friedmann (1930):

| | |
|--------------------------|--------------|
| <i>T. jardinei emini</i> | 97 - 107 mm |
| <i>T. h. hypoleucos</i> | 102 - 118 mm |
| <i>T. hindei</i> | 100 - 101 mm |

These wing-lengths show considerable overlap between the three species with *hindei* falling mainly between the other two.

Measurements of some specimens from the National Museum, Nairobi are given in Table 1. In each case only examples occurring closest to Central Kenya have been measured. Although a small sample, these measurements suggest that *hindei* averages larger than the other two only in bill-length, and is perhaps slightly longer-winged than *jardinei*. An example of *hindei*, captured at Kianyaga on 28 January 1978, weighed 69 g and fell into the recorded range with wing-length

101 mm and bill 22 mm.

TABLE 1

Measurements of some babblers in the National Museum, Nairobi

| | <i>T. hindei</i> | <i>T. jardinei</i> | <i>T. hypoleucos</i> |
|-----------------|------------------|--------------------|----------------------|
| Bill (mm) | 19-22.5 | 17-18.5 | 17.5-19 |
| Wing (mm) | 100-102 | 93-100 | 101-110 |
| Tarsus (mm) | 30-34.5 | 33-33.5 | 31-36 |
| Number measured | 5 | 2 | 5 |
| Sex on label | (one male) | (both female) | (two males) |

PLUMAGE

Although *hindei* is very variable in plumage the major features are consistent and show little resemblance to either *jardinei* or *hypoleucos*. Features consistently present in *hindei* and not found in the other two are the white edges to the blackish throat and breast feathers giving a bold scaly or spotted effect, and the rufous-buff flanks, underwing coverts and rump. The Northern Pied Babbler does have a faint scaly pattern on the crown, more noticeable in some individuals than in others, but this is far more pronounced in *hindei*. Some *hindei* apparently have some 'arrow-marks' on the breast similar to those characteristic of *jardinei*.

VARIATION

Van-Someren (1932) pointed out that the variation in *hindei* is so great that no two individuals are exactly the same. The main differences concern the extent of white on the crown, mantle and underparts. Some individuals are very white below but always with some dark spotting, especially on the breast. Again, some birds are almost white on the mantle. Of the seven specimens in the National Museum, Nairobi, six are 'typical' birds with very little difference between them. The seventh has a great deal of white in the plumage and is evidently a partial albino. I have not seen a bird with as much white as this in the field.

Variation is also shown by other babblers. *Turdoides hypoleucos* varies in the extent of brown on the chest - most birds having brown pectoral patches - but these are more extensive in some individuals and occasionally form a complete band across the chest. A bird watched near Nanyuki in June 1978 had the whole underparts, apart from the throat, a dingy grey-brown. Some specimens from the Chyulu Hills in the National Museum, Nairobi, have variable amounts of brown on the underparts.

BARE PARTS

Although Mackworth-Praed & Grant (1960) stated that the colours of the bare parts of *hindei* were unknown, as so often happens with those authors, earlier published information had been overlooked; thus Jackson (1938) described the bill as black and the legs horny (but see below). Specimens in the Field Museum of Natural History, Chicago, have the iris variously described as crimson, orange-yellow and as a 'pink tinge around the iris'; the bill is described as black and the feet as greyish-black or black. Blencowe (1960) appears to be the first author to describe the iris colour as red. Basing our description on a bird in the hand as well as on field observations, M. Goddard and I agreed that the iris is rich orange-red, the bill dark slate and the feet dull umber. The orange-red iris is a striking field character which contrasts greatly with the yellow iris of *jardinei* and the creamy iris of *hypoleucos*.

DISTRIBUTION

Turdoides hindei is a species endemic to Kenya with a very limited range. Mackworth-Praed & Grant (1960) summed up the range as the Kikuyu and Ukamba Provinces of Central Kenya. On Map 174 in Hall & Moreau (1970) the range is shown to extend north and west of Mount Kenya, but I have no evidence to suggest that it does so: its distribution is entirely to the south and east of the mountain. Jackson (1938) gave recorded localities as Athi River, Fort Hall (now Murang'a), Kitui and Nziu River and says that it appears to be confined to the Athi River south of Donyo Sabuk - a statement which ignores the Murang'a record. Friedmann (1930) cited examples collected from the Thika/Tana River junction, and at 9 miles (14½ km) up the Thika River from the junction. These specimens are now in the National Museum of Natural History of the Smithsonian Institution. Van Someren (1932) collected twelve birds in August, September and October on the Nziu River, although he did not give the precise locality. Williams (1967) gave Machakos as well as Murang'a as localities. Four specimens in the National Museum, Nairobi, are from Donyo Sabuk, and there is one from Chuka, while the partial albino already mentioned is from Embu.

Blencowe (1960) described *hindei* as common in the Embu district. During 1976 and 1977 P.E. Beverley made a survey of the distribution of the species between Embu and Thika and discovered it in 19 localities. Recent intensive searches in suitable habitats around Thika have failed to locate the species. The National Museum specimens from Donyo Sabuk were collected in December 1970 but subsequent attempts to find it there have been unsuccessful (D.A. Turner pers. comm.). I have been unable to trace any recent records from the Machakos, Kitui, Athi River or Nziu River areas.

The total known range of *hindei* is no more than 17 500 km². Over much of this range the bird may now be absent, and has not been reported in recent years from most of the localities from which the known specimens were collected. This could, in part, be due to lack of observation. However, it will be noticed that these localities are widely scattered in outposts isolated from the centre of distribution, which may suggest that the range was formerly much wider than it is now.

At present the bird may be regarded as fairly common in suitable habitats within an area of some 1050 km² centred around Embu and extending west to Saba Saba and south to the Tana River. Its distribution seems to be linked mainly to the river systems of the upper Tana (see Fig.1, p.64). No doubt further sites would be discovered by a thorough search of little known river valleys south of Mount Kenya.

HABITAT

The habitat was summed up by Blencowe (1960) as 'fringes of cultivation with scattered trees, plenty of cover yet fairly open'. Although on the one hand the habitat is rather more restricted than this description would imply, on the other hand, in the Embu district two very different types of habitat are occupied. One is in river valleys where it prefers relatively open areas, often where there is secondary growth following clearing of forest for cultivation but where some trees remain. The alien *Lantana* is often common in this type of area. This is the main type of habitat and tends to restrict the bird to steep sided valleys which either defy cultivation or have been allowed to revert to bushy growth. The second type of habitat is drier open woodland, especially where there are bushy streams or gullies which the bird frequents in preference to more open areas. Water of some sort is usually associated with the localities in which *hindei* occurs.

The locality from which birds were collected at Donyo Sabuk is open dry



Fig.1 Map showing the distribution of Hinde's Babbler *Turdoides hindei*. ■ indicate specimens collected before 1971, with the last recorded year; this area is enclosed by a dashed line. ▲ show post 1971 records and are enclosed by a dotted line

Acacia bush totally different from either of the Embu habitat types. It is curious that the bird has been collected here but has not been recorded in more typical habitats present within a few kilometres. Blencowe (1960) noted that *hindei* occurred between 5600 feet and 4000 feet (1700 - 1220 m). It is now known from two localities at 3700 feet (1130 m) and the Kitui and Nziu localities may have been as low as 3000 feet (915 m) or even less

BEHAVIOUR

Turdoides hindei is in all respects a typical babbler. It occurs in parties of six to eight, which are highly resident within a small area. Their presence is often first revealed by hearing their babbling calls, although they may remain silent for long periods, even when the observer is close. It seems that the babbling notes are mainly given when the birds are on the move. Although they frequent dense cover, they can often be found feeding on the ground in the open nearby. Single birds will often sit on some exposed post or stump for many minutes at a time. When disturbed, parties are initially noisy and usually fly up into trees where they then become silent.

On 25 February 1978, J. Burrell and I watched three birds sitting side by side on a branch in light drizzle, mutually preening. This continued for some minutes. During mutual preening one bird would stretch up its neck while another bird or two would preen amongst its neck feathers. This habit is characteristic of babblers - P. Beverley (pers. comm.) has photographed mutual preening in *T. jardinei* and *T. melanops* (Black-lored Babbler) and I have seen it in *T. aylmeri* (Scaly Chatterer). The significance of this behaviour is unknown but it may help in bonding the group together since the parties remain together even in the breeding season. Although mutual preening between paired birds is a common form of sexual behaviour in many species of bird, the form of mutual preening in babblers, involving several birds, is unusual. A similar behaviour occurs in mousebirds, Coliidae (pers. obs.).

VOICE

Hinde's Babbler has a variety of calls which can be distinguished from those of *hypoleucos*. The 'babbling' call is a rambling *chare-chare-chare-chare*, softer and more 'conversational' in tone than the equivalent call of *hypoleucos* which may be rendered *skare-skare-skare-skare*. *Turdoides hindei* also has a chattering *chirrr-chirrr*, possibly a contact note, and a hiccup-like double note which is possibly an alarm since it is used by disturbed birds and was given by a pair at a site where I suspected that there was a nest.

BREEDING

There are few definite breeding records. Two clutches were taken by van Someren at Murang'a on 9 April 1921 (C/2) and 7 April 1920 (C/3). The eggs are described by Mackworth-Praed & Grant (1960) as 26 x 18 mm, light blue and glossy, whilst those of *hypoleucos* are described as rich dark blue with little gloss. Blencowe (1960), however, described the eggs of *hindei* as being the same shade of blue as those of *hypoleucos*. Blencowe (op. cit.) found a nest at Kiritiri on 7 September 1957 in a bush top 4½ feet (1.4 m) from the ground and she described it as being made of coarse grass, lined with finer grass. The half-grown nestlings were slate-grey in colour with bright yellow gapes. They were being fed on a dark glutinous mass collected from below bushes, and the parents were accompanied by two or three other birds. That the birds remain in parties during the breeding season had been noted by van Someren (1932), and on 25 February 1978, when I observed a fully fledged Black and White Cuckoo *Clamator jacobinus* being fed by a Hinde's Babbler, the babbler was a member of a party of about seven birds. This sighting constitutes a

new host record for the Black and White Cuckoo which is known to parasitize various other species of babbler, as well as other birds (see Turner 1977b).

RELATIONSHIPS WITH OTHER BABBLERS

Hall & Moreau (1970) grouped the 12 species of *Turdoides* occurring south of the Sahara into two superspecies. The first, the *reinwardtii* superspecies, includes *tenebrosus*, *melanops*, *sharpei*, *hypoleucos*, *squamulatus*, *leucopygius*, *bicolor* and possibly *hindei*. Of these, *bicolor* is a striking black and white bird quite different in plumage from the others, all of which are basically greyish or brown and white. The first four species have a yellow or white eye while those with a scaly plumage pattern (*squamulatus*, *leucopygius* and *hindei*) have red eyes.

The second superspecies contains *jardinei*, *plebejus*, *leucocephalus* (sometimes lumped with *jardinei*), *gymnogenys* and again, possibly *hindei*. In plumage *hindei* is remarkably similar to the race of the White-rumped Babbler *Turdoides leucopygius omoensis* found in the southeastern Sudan and southern Ethiopia. The scaly pattern on the dark head and breast, whitish belly, rusty brown flanks and dark tail and red eyes are common to both. They differ in that *T. l. omoensis* has a longer and more curved bill, whitish face and white rump.

As Hall & Moreau (1970) pointed out, the *leucopygius* group is extraordinarily variable in size, colour and pattern and "This variation in a relatively small area indicates how readily speciation of the babblers could have proceeded given geographical isolation." *T. hindei* would appear to be more closely related to *leucopygius* than to any other species and it may be best to group the red-eyed scaly plumaged babblers to form a third superspecies. Since the Scaly and Rufous Chatterers (*T. aylmeri* and *T. rubiginosus*) are now regarded as being in the genus *Turdoides* (formerly in *Argya*) they would presumably constitute a fourth superspecies.

The populations of *hindei* are small, apparently stable and highly resident in the valleys in which they occur, as evidenced by visits in all months over a 2 yr period by P. Beverley (pers. comm.). Lack of interchange between valleys would mean that this species exists as relatively isolated, and thus highly interbred, groups. This may account for the apparently high frequency of partial albinism seen in this bird and could explain the wide variation range in plumage, since it is known that considerable variability occurs in inbred lines in many organisms. Inbred groups tend to be identical only in characters which are not easily modified by environmental conditions, but differ markedly from one another in characters which are more susceptible to such modification.

In addition, inbred groups tend to show reduced fertility which could account for the rarity of this bird. At sites where several have been collected, such as one site at Murang'a and at Donyo Sabuk, the bird seems to be extinct now (D.A. Turner pers. comm.). The apparent contraction of the species' range is shown in Fig. 1.

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NOTES ON SOME BIRDS NEW TO SOUTH SUDAN

G. Nikolaus

Since Cave & Macdonald's *Birds of the Sudan* was published in 1955 there has been very little ornithological fieldwork in the South Sudan (here defined as that part of the country south of 10°N.). Bowen (1926, 1931) gave the first list of Sudan birds, with short notes on distribution and abundance. Cave & Macdonald (1955) remains the fundamental book for all fieldworkers in the Sudan and describes the birds as well as giving fairly detailed notes on distribution and abundance. They added a number of species to the list by visiting the areas along the southern border. However, there are still areas which have not been visited by ornithologists. It is not surprising, therefore, especially since the use of mist-nets, that a number of hitherto unrecorded species have been found; these are reported below.

The habitat in the South Sudan is generally very uniform. It is mainly Sudan savanna, which stretches from the Sudan to West Africa, but includes the Sudd. It is only around the borders in the east and south that the influence from different habitats is noticed: the Ethiopian highlands on the Boma Hills, Turkana on the Ilemi Triangle, the western Ugandan highlands on the Aloma Range, south of Yei, the Zaire Forest on Zande - Benggai and the eastern Ugandan highlands on the Didinga and Imatong Mountains. These areas add a number of birds to the typical South Sudan avifauna. It is also the reason why there are no endemic species known from the South Sudan: either they are birds of the Sudan savanna or they are species just reaching the country from neighbouring habitats in adjacent countries.

In the accounts which follow, birds new to the Sudan as a whole are marked with two asterisks, while those new to the South Sudan (but recorded from elsewhere in the country) are given one asterisk.

BOMA HILLS, 6°10'N, 34°30'E, 1500 m

These are part of the Ethiopian highlands which stretch into the South Sudan on its eastern border. They are mainly covered with broad-leaved tree-savanna except for a small amount of evergreen forest on the western slope which comes down to 1000 m. Large open grass plains with *Balanites* extend southwest of the area.

****ALCEDO SEMITORQUATA** Half-collared Kingfisher

On 23 February 1979 two birds (one immature male, one adult female) were caught along a small fast running stream in gallery forest, below the evergreen forest. I know the species from similar habitat in Ethiopia.

CISTICOLA BODESSA Boran Cisticola

Cave & Macdonald (1955) report this species (as *C. chiniana bodessa*) from the Boma Hills. It was not uncommon on the high plateau, singing from the tops of trees. One male collected on 20 February 1979 had a wing-length of 71 mm. This species is listed here since South Sudan records were not given by Dowsett-Lemaire & Dowsett (1978).

ILEMI TRIANGLE, from Kapoeta to Lake Turkana, c.700 m

Kenya/Sudan border, 4°32'N, 34°14'E

Natoporuputh Hills, 4°52'N, 34°00'E

Kapoeta, 4°45'N, 33°35'E

Magoth, 5°08'N, 33°42'E

This area is the northern extension of Turkana District northwest of Lake Turkana itself. The habitat is similar (short grass with *Acacia mellifera* and *Balanites*) to that of Turkana; it is not surprising that most of the birds

found in that part of Kenya also occur in the southeastern corner of the Sudan.

****CAPRIMULGUS DONALDSONI** Donaldson-Smith's Nightjar

One male was caught on 14 June 1978. These distinctive, small nightjars were seen very commonly in the evenings throughout the area, from the Kenya border almost as far as Kapoeta. They were absent in November and December. This bird is not reported by Elliott (1972) from Kidepo (extreme northeast Uganda), although it must surely occur there.

***RHODOPHONEUS CRUENTUS** Rosy-patched Shrike

Cave & Macdonald (1955) record the nominate race from the old Red Sea Province to Kordofan. At the end of November the Rosy-patched Shrike was noticed frequenting the drier parts of the thornbush scrub, especially where there were open stony areas. It was found from Lokichokio (Kenya) to the area here called Kenya/Sudan border. It is likely that these birds belong to the race *hilgerti* which occurs in northwestern Kenya (White 1962b) and which has not been recorded in the Sudan (Cave & Macdonald 1955).

****LANIUS DORSALIS** Taita Fiscal

This shrike was a fairly common resident all over the area, north to Magoth and west to Kapoeta, in both wet and dry seasons. It was found in open grassland with thornbush and in cultivated areas.

****CISTICOLA CINEREOLA** Ashy Cisticola

Two birds were collected on the Kenya/Sudan border on 18 December 1978, one a first year male with wing-length 61 mm and the other a female, wing-length 51 mm; the female contained a fully developed egg, indicating breeding at the end of the rains. Since there is a second rainy season during April and May, it is possible that the species breeds twice a year as suggested by Mackworth-Praed & Grant (1960). The birds were found in an open thornbush area with short grass.

***SPILOPTILA RUFIFRONS** Red-faced Warbler

A bird commonly found in thick thornscrub. They were encountered in the Natoproputh Hills in December 1977 and on the Kenya/Sudan border in December 1978. Those obtained were just coming into breeding condition, which suggests that the species breeds in January. The examples belonged to the race *smithii* which is recorded from Ethiopia, Somalia, Kenya and northeastern Tanzania (White 1962a) but which has not been found previously in the Sudan where only the nominate race has been found (Cave & Macdonald 1955).

****BATIS PERKEO** Pigmy Batis

Three were collected on 22 December 1977 in thick thornbush scrub in the Natoproputh Hills. The species has not been encountered subsequently in the South Sudan. Hall & Moreau (1970, Map 261) show plots in virtually the same area but Elliott (1972) did not record it from Kidepo.

****VIDUA FISCHERI** Straw-tailed Whydah

Cave & Macdonald (1955) did not include this species in their list but they note, in square brackets, two sight records from the eastern side of the Dongotona Mountains (4°20'N, 33°20'E) and the eastern side of the Didinga Mountains (4°35'N, 34°00'E). We have two more records: a small flock with males in breeding dress was seen on the Kenya/Sudan border in May and December 1978 and a single male was collected 10 km SE of Kapoeta. These dates are at the end of the rains and I assume that they breed twice a year. Mackworth-Praed & Grant (1960) note that they are parasitic on the Purple Grenadier *Uraeginthus ianthinogaster*. The Purple Grenadier was found in the same area and is more common than indicated by Cave & Macdonald, but only

some were coming into breeding condition. The only estrilidid breeding then in both localities in December was the Blue-capped Cordon Bleu *U. cyanocephalus* (see below). The single male collected near Kapoeta was calling continuously from a tree near a pair of the cordon bleus, the female of which was ready to lay.

****VIDUA HYPOCHERINA** Steel-blue Whydah

This species was only seen once, in May 1978, 20 km SE of Kapoeta when two males and three females were found sitting near the road in thornbush country. The males were in breeding dress. Elliott (1972) reported this species from Kidepo but did not record *fischeri*, which seems to be much more common in the South Sudan.

****ESTRILDA ERYTHRONOTUS** Black-cheeked Waxbill

It is probably not uncommon, frequenting the thicker thornbush scrub. One male was collected 20 km SE of Kapoeta in June 1978. The species was also seen on the Kenya/Sudan border and is reported by Elliott (1972) for Kidepo.

****URAEGINTHUS CYANOCEPHALUS** Blue-capped Cordon Bleu

These birds were found in the thicker thornbush scrub from the Kenya/Sudan border to within 10 km SE of Kapoeta. In both localities they were very noticeable and common. All five birds collected were in breeding condition and one female had a fully developed plain white egg in the oviduct. It is likely that the Straw-tailed Whydah is parasitic on this species (see above). It is possible that this cordon bleu is locally migratory as it had not been seen before in the area.

These records represent a great extension of range to the northwest. Urban & Brown (1971) give it as an uncertain resident, with no breeding records, in SE Ethiopia while J.S. Ash (pers. comm) collected one in S Ethiopia.

***CORVUS RUFICOLLIS** Brown-necked Raven

The race *edithae* is common around Lake Turkana and east to Borana, Ethiopia (pers. obs.). It is not surprising therefore to find this bird in the South Sudan, in fact Hall & Moreau (1970 Map 436) have a plot for *edithae* which appears to be on the Kenya/Sudan border. I have records of it from the Kenya/Sudan border (May, November and December 1978) and in the Natoporoputh Hills in December 1977. The nominate race is recorded from further north in the Sudan (Cave & Macdonald 1955).

IMATONG MOUNTAINS

Gilo/Itibol 4°00'N, 32°51'E, 1900 m

Mt Kinyetti 3°55'N, 32°55'E, summit 3180 m

Talanga 4°01'N, 32°43'E, 950 m

The Imatong and Acholi Mountains (4°03'N, 32°37'E) are isolated ranges, unlike the Didinga Mountains which are connected with the Uganda highlands. Large parts are covered with undisturbed evergreen montane forest. Mt Kinyetti, which has an afro-alpine flora on its higher slopes, is the highest peak in the Sudan. Evergreen lowland forest occurs on the southern, southwestern and northern slopes (Laboni, Lotti, Talanga). Gilo/Itibol, the main study area, is an old logged valley with *Veronia* shrubs and secondary growth, bordered by forest along the Kinyetti River.

ACCIPITER MELANOLEUCUS Great Sparrowhawk

Cave & Macdonald (1955) had only one record from the Sudan, from Fazugli (now Sennar, 13°20'N, 33°35'E) dating from 1840. This species is uncommon, frequenting the better wooded savanna. One was seen occasionally flying over the forest at Gilo/Itibol. Another example was seen at Li Rangu (4°45'N, 28°22'E) in Western Equatoria, quietly sitting in a tree watching for chickens.

****RALLUS CAERULESCENS** African Water Rail

One was seen on 8 March 1978 very early in the morning in Itibol, walking slowly along branches hanging over the water of the Kinyetti River. The species is known from Ethiopia (Urban & Brown 1971) but has not been recorded before in the Sudan.

ISPIDINA PICTA Pigmy Kingfisher

Between 28 June and 1 July 1978 six Pigmy Kingfishers of the southern race ****natalensis** were caught in Talanga Forest. Hitherto *natalensis* has not been recorded north of the equator (White 1965). All, except one immature male, had the distinct blue spot on the ear-coverts. The light blue barring on the head was more distinctive than in the nominate race, and they were larger with wing-lengths ranging from 55 to 58 mm. Three males were collected. All were moulting or had just finished moulting, while *p. picta* moults in the Sudan in September (pers. obs.). These examples of *natalensis* must have been non-breeding migrants from the south: in Malawi for instance, they are present only between October and March (Benson & Benson 1977).

****PRODOTISCUS INSIGNIS** Western Honeybird

One female was collected with a fully developed plain white egg on 4 January 1978 in Gilo/Itibol. Two further examples were ringed in March and April and another was seen in May. The wing-lengths were between 70 and 71 mm. The species has not been seen or caught after the rains in May. The race involved has not been determined.

Mackworth-Praed & Grant (1960) note that the Western Honeybird is parasitic on white-eyes and tinkerbirds. These would be suitable hosts in the area since the Montane White-eye *Zosterops polioogastra* and the Golden-rumped Tinkerbird *Pogoniulus bilineatus* both breed in Gilo/Itibol in January (pers. obs.).

****EMINIA LEPIDA** Grey-capped Warbler

This species is not listed by Cave & Macdonald (1955) but White (1962a) states that it occurs on the "Sudan border at Wadelai"; however, Wadelai (2°42'N, 31°22'E) is in fact in Uganda, over 100 km south of the Sudan border.

The Grey-capped Warbler is a very common resident in areas bordering the Kinyetti River, occurring in thick scrub. Sixteen have been caught (four collected, the others ringed) and three of the ringed birds have been re-trapped at the same site some months later. Moulting birds were caught in April and breeding appears to take place between November and February.

****SERINUS CANICOLLIS** Yellow-crowned Canary

It was found commonly in December and April in the higher parts of the montane forest, mainly above 2400 m, feeding on *Podocarpus* trees together with African Citrils *S. citrinelloides*. Near Gilo/Itibol it was seen feeding on herbs and sorghum in March, July and November. Three were collected in November. Wings measured: two males 78 and 82 mm, one female 74 mm; the males were in breeding condition. The birds belonged to the race *flavivertex*.

WESTERN BAHR-EL-GHAZAL

Tambura 3°40'N, 27°27'E, c 600 m

Wau/Busseri 7°32'N, 27°58'E, 430 m

Aweil, 8°45'N, 27°24'E

The southern and western Bahr-el-Ghazal is a little-known area, covered for the most part with broad-leaved tree savanna with frequent iron-stone clearings.

CHARADRIUS FORBESI Forbes' Plover

This species is not listed for the Sudan by either Cave & Macdonald (1955) or White (1965), however, there is a plot in the Bahr-el-Ghazal in Snow (1978, Map 187) which no doubt refers to a record of Cave's (1955, unpublished);

he found three pairs on three separate iron-stone clearings in the vicinity of Busserie on 28 July 1955. The three sites were within a few kilometres of each other and Cave suspected that breeding was taking place, although he was unable to prove it.

On 22 August 1978 a pair of Forbes' Plovers were seen on an open, rocky iron-stone place 30 km N of Tambura. Both birds ran along the road with trailing wings, suggesting that the pair had young nearby. The birds were not seen a month later when I returned to the site.

****LIMICOLA FALCINELLUS** Broad-billed Sandpiper

Aweil Rice Scheme is probably the best place for waterfowl and waders in the South Sudan. Large parts of the area consist of grassland which is flooded from July to November, in addition to the rice-fields themselves. On 26 August 1978 I saw a Broad-billed Sandpiper in the rice nursery. It was not at all shy and allowed me to approach to within 5 m. The bird had a double eye-stripe, short dark legs, a fairly long bill curved down at the tip, and a grey spotted breast contrasting with the white belly. Recent records from eastern Africa indicate that it is more common than previously realized (see Ash 1978, for example).

NESOCHARIS CAPISTRATA Grey-headed Olive-back

Six were collected in January 1916 at Maridi (4°55'N, 29°28'E) and this is the only record in Cave & Macdonald (1955). In his unpublished 1955 notes, Cave records seeing a small flock in Wau along the Busserie River between 2 and 4 June 1955, frequenting tree-tops.

I can provide two more recent records: on both occasions the birds were in small flocks behaving like tits *Parus* spp., searching the tree-tops in gallery forest. The first record was on 30 March 1979, 25 km north of Boro (8°35'N, 24°42'E), the second occasion was on 10 April 1979 on the Boro River at 8°27'N, 24°47'E. They are probably not uncommon in gallery forest in the area. Ziegler (1971) recorded the species from undergrowth in degenerate riparian forest between Karuma and Murchison (now Kabelega) Falls, Uganda.

JUBA 4°52'N, 31°30'E, 450 m

An area which has been fairly extensively studied by various ornithologists and explorers in the nineteenth century (see Cave & Macdonald 1955, Appendix II). Grassy meadows, which are temporarily flooded, stretch along the River Nile (Bahr el Jebel) which has some reed beds. More distant from the river the country consists of dry thornbush.

****CIRCUS RANIVORUS** African Marsh Harrier

An immature was caught and ringed early in the morning of 20 October 1978 during wader-netting operations. The bird had a wing-length of 347 mm and weighed 285 g. This species is not recorded for the Sudan in the literature.

***CHARADRIUS TRICOLLARIS** Three-banded Plover

Cave & Macdonald (1955) report this plover as a rare resident at Gallabat (12°58'N, 36°09'E) in the east of the country on the border with Ethiopia. One was caught on 10 November 1978 at the same site which produced the African Marsh Harrier.

***CAPRIMULGUS NUBICUS** Nubian Nightjar

Cave & Macdonald (1955) recorded it as a not uncommon resident in the old Red Sea, Berber and Dongola Provinces, and possibly also in Kordofan, in desert scrub. Four sandy brown nightjars caught on 9 and 10 January 1979 in short grass near the above-mentioned wader site proved to be Nubian Nightjars. Two were collected and the identification was confirmed by Dr König of

the Naturkundemuseum, Stuttgart, the other two were ringed. Two other species of nightjar were caught at the same time, namely Slender-tailed *C. clarus* and Long-tailed *C. climacurus*.

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THE RACES OF THE RED-TAILED SHRIKE *LANIUS ISABELLINUS*
OCCURRING IN EAST AFRICA

D.J. Pearson

From November to early April the Red-tailed Shrike of southern Asia is one of the most conspicuous and familiar Palaearctic passerine visitors to the lower lying semi-arid bushlands and open woodlands of Kenya, northern and eastern Uganda and northeastern Tanzania. The great majority of these birds are referable to the race *phoenicuroides*.

It has been stated by a number of authorities (e.g. Jackson 1938, Mackworth-Praed & Grant 1960, Dement'ev & Gladkov 1954, Vaurie 1959, White 1962b) that the more easterly breeding nominate race also occurs, but most early workers failed to separate the forms *isabellinus* and *speculigerus*. I have recently had the opportunity of examining the Red-tailed Shrike specimens at the British Museum (Nat. Hist.) and at the National Museum in Nairobi, and in the light of the racial criteria set out by Vaurie (1959) have attempted to ascertain whether *isabellinus* and/or *speculigerus* do reach East Africa. This note summarizes the characters of the various Red-tailed Shrike races, and reviews their status in Kenya, Tanzania and Uganda. It also provides details of the occurrence of Red-tailed/Red-backed Shrike hybrids (*L. isabellinus* × *L. collurio*) in Kenya and Tanzania.

SYSTEMATICS AND DISTRIBUTION

Opinions have varied with regard to the systematic position of the Red-tailed Shrike in relation to other similarly sized, short-tailed Eurasian shrikes. Earlier authors regarded it as a species separate from the largely allopatric Red-backed Shrike *Lanius collurio* of Europe and western Asia and the Brown Shrike *L. cristatus* of north-central and eastern Asia. However, there has more recently been a tendency to place all three together as groups of races within a polytypic species *Lanius cristatus*, *sensu latu*, ranging from the Atlantic to the Bering Sea (e.g. Meinertzhagen 1954, Dement'ev & Gladkov 1954, Voous 1960, Portenko 1960, Hall & Moreau 1970). There is a close plumage resemblance between certain races of the Red-tailed and Brown Shrikes, whilst interbreeding seems to occur commonly between the Red-tailed and Red-backed Shrikes where their ranges overlap. Vaurie (1959) separated the Brown Shrike specifically, but retained the other two together within an expanded *L. collurio*. Following Moreau (1972), Voous (1977) and early authors, as well as recent usage in East Africa (e.g. Pearson & Backhurst 1976), I have treated the Red-tailed Shrike here as a separate species.

Vaurie (1959) recognizes four races of the Red-tailed Shrike: *phoenicuroides*, *speculigerus*, *isabellinus* and *tsaidamensis*. Their breeding ranges are shown, together with those of the Red-backed and Brown Shrikes in Fig. 1. The male plumage characters of the first three races as given by Vaurie are summarized and compared with those of the Red-backed Shrike in Table 1, together with other apparently useful wing and tail criteria, checked by me in each case on series of 20 fresh male museum specimens. *L. i. tsaidamensis* differs from the nominate race only in being slightly larger and paler. Most female and first-autumn specimens appear to be unidentifiable as to race on plumage characters. Although past authors have often confused *speculigerus* and *isabellinus*, or have lumped them, it can be seen from the table that they are distinct in a number of respects. *L. i. speculigerus* in fact shows several characters in common with *phoenicuroides*.

Early reports of nominate *isabellinus* in Africa were presumably based on the collection of paler birds lacking rufous heads. Van Someren (1922) mentions

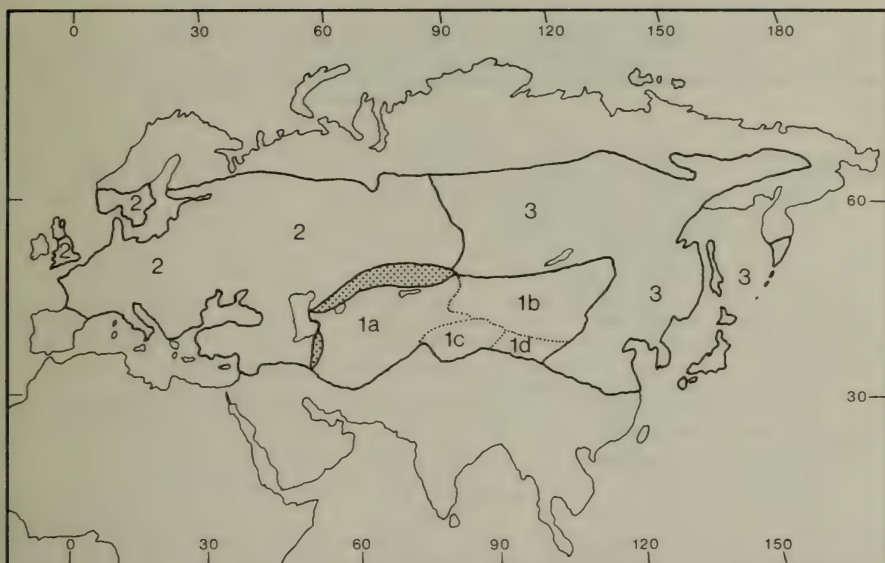


Fig.1. Map showing the breeding ranges of three species of *Lanius*

KEY

- Regions of *L. collurio* x *L. isabellinus* interbreeding
- 1a. *L. isabellinus phoenicuroides*
 1b. *L. i. speculigerus*
 1c. *L. i. isabellinus*
 1d. *L. i. tsaidamensis*
2. *L. collurio* 3. *L. cristatus*

seven Kenyan examples, but only one of these was a 'mature' male. Jackson (1938) admitted *isabellinus* for East Africa on the strength of a single Naivasha bird and a small series collected by Fox in Lango. Chapin (1954) considered that the nominate race wintered to the west of *phoenicuroides*, from the Nile Valley to Lake Chad, Ituri and Lake Kivu; he listed five birds collected in north-eastern Zaire. Vaurie (1959) included Africa south and west to Kenya, Uganda and Lake Chad in the wintering range of *isabellinus*; he stated that the winter quarters of *speculigerus* were "unknown, but probably the same as those of *isabellinus*". Moreau (1972) also considered *isabellinus* to be the race reaching the Sudan and Chad.

I examined 30 male-plumage museum specimens from East Africa. Twenty-seven of these, dated 18 November - 28 March, were undoubtedly *phoenicuroides*, with a black mask, a large speculum, whitish underparts and, in all except three, a chestnut crown; the three exceptions were uniform pale isabelline above. The other three had originally been labelled *isabellinus*. One of these, collected on 25 March on the northwest flank of Kilimanjaro (presumably in Tanzania) could be assigned without hesitation to *speculigerus*; in addition to greyish isabelline upperparts, it had a black face mask, a large speculum, new blackish primaries and sandy underparts tinged pink on the breast. The

TABLE 1

Some plumage and wing/tail measurement characters of male
Red-tailed and Red-backed Shrikes

| | <i>Lanius isabellinus</i> | | | <i>L. collurio</i> |
|------------------------------------|---|---------------------|--|---------------------------------|
| | <i>phoenicuroides</i> | <i>speculigerus</i> | <i>isabellinus</i> | |
| Upperparts | typically buffy brown with head rufous; some paler uniform greyish isabelline, including head | greyish isabelline | isabelline | rufous back, head and rump grey |
| Underparts | whitish | *creamy | creamy | tinged pink |
| Tail/upper tail coverts | orange-brown | orange-brown | orange-brown (paler) | black |
| Face mask | black | black | blackish-brown | black |
| Speculum at bases of pp | large, white | large, white | none or small, usually buff | none |
| Colour of pp when fresh | blackish | blackish | brown | blackish |
| Position of p2 tip cf. other pp ** | 5/6 (=5, =6 rarely 6/7) | 5/6 (=6 or 6/7) | 5/6, =6 or 6/7 | 4/5 (=4 or =5) |
| Wing point | p3 or 3&4 | p3 or 3&4 | p4 or 3&4 | p3 |
| Mean wing/tail ratio | 1.18 | not taken | 1.15 | 1.25 |
| Moult locality | winter quarters | winter quarters | apparently in breeding area. Found freshly moulted in November in India and Pakistan. | winter area |

*In males from Central Asia and in fresh African specimens which otherwise conform to *speculigerus*, a slight pinkish suffusion was noticed on the breast.

**Positions enclosed in round brackets are occasionally found.

other two, collected at Kisumu (January) and Dar es Salaam (November) were worn, but appeared to be either *speculigerus* or pale *phoenicuroides*.

A further 63 male specimens were examined from elsewhere in northeastern Africa and the Arabian peninsula. Many were typical *phoenicuroides* but 30 were uniform isabelline or greyish-isabelline above. These pale birds all had a black mask and a large white speculum, and showed evidence of a winter moult timing. Most were referable to *speculigerus*, and none matched breeding *isabellinus* material from Chinese Turkestan. The majority of these *speculigerus* specimens were from the Sudan (including southern areas) and Arabia.

It would appear therefore that the nominate race and *tsaidavensis* do not occur in East Africa, or perhaps migrate through Arabia to Africa at all. Isabelline-coloured birds in northeast Africa (and probably those wintering

west to Lake Chad and Zaïre) are mainly *speculigerus*. Since *speculigerus* clearly winters commonly in the Sudan, it presumably reaches northern Uganda, and perhaps accounts for the Lango series mentioned by Jackson (1938). In view of the Kilimanjaro specimen, it should be looked for among the predominating *phoenicuroides* in Kenya and Tanzania.

HYBRIDIZATION

Red-tailed/Red-backed Shrike hybrids have been described (sometimes as separate species) both from Central Asia, where *L.i. phoenicuroides* meets the nominate race of *L. collurio* in the southern Khirgiz steppes and northeast of Lake Balkhash, and from Turkmenistan and northern Iran, where *phoenicuroides* meets *L. collurio kobylini* (see, for example, Stegmann 1930, Dement'ev & Gladkov 1954). Hybrids would be expected to occur in East Africa, where *L.i. phoenicuroides*, nominate *L. collurio* and *L.c. kobylini* are all common and overwinter, but the only published report seems to be of a November bird near Arusha, assigned the specific name *L. bogdanowi* (see Mackworth-Praed & Grant 1960). There are now a number of further records. There are two hybrid male specimens in the National Museum, Nairobi, collected at Maktau on 11 November 1950 and at Mui, Kitui, in January 1938, as well as a probable hybrid female collected near Isiolo in February 1961. Moreover, some 180 male Red-tailed and Red-backed Shrikes caught for ringing in East Africa between 1966 and 1979 have included three definite hybrids - passage birds at Ngulia Lodge on 12 November 1974 and 27 November 1975, and a moulting bird, which was presumably wintering, at Nairobi on 2 February 1975.

The female museum bird mentioned above has a dark brown tail, but uniform isabelline-brown upperparts and fine barring below, and has the second primary tip falling short of the fifth. The five Kenyan males all resembled typical Red-backed Shrikes in having a grey upper head and pinkish underparts. They differed, however, in having the back warm brown to earth brown, the rump and upper tail coverts with mixed reddish and grey feathers, the tertials brown with buff edges, and the tail dark brown to blackish, with reddish brown edges. All except one had a large wing speculum. In one case, the second primary was equal to the fifth; in the other four birds it was rather shorter.

Further trapping, and even careful inspection in the field, may well provide many more records of these intermediate birds in East Africa.

ACKNOWLEDGEMENTS

I should like to thank I.C.J. Galbraith for allowing me to study the specimens in the British Museum (Nat. Hist) and G.R. Cunningham-van Someren for affording similar facilities in the National Museum, Nairobi.

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(Received 20 June 1979)

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SHORT COMMUNICATIONS

THE WHITE THROATED FORM OF THE PIED WHEATEAR *OENANTHE PLESCHANKA* IN KENYA
On 25 November 1978 DJP, together with G.J. Jobson, watched, near Sultan Hamud, a dark-backed wheatear *Oenanthe* sp. with dark cheeks, an otherwise pale head and whitish underparts. On closer examination this bird was identified as a first-year male Pied Wheatear *O. pleschanka*. The flight feathers, wing coverts and tertials were blackish-brown, and the underwing dark. The mantle was also blackish-brown with some paler feather edgings visible. The crown and nape were pale greyish-brown. The lores and ear coverts were blackish-brown, and there was blackish at the sides of the upper breast, near the bend of the closed wing. A blackish mark was also visible at the side of the neck, at the rear border of the throat, but the throat itself was white. The extensive white rump, very limited amount of black in the outer tail feather tips, and (compared with *O. oenanthe*) the longish tail, light build and 'weak' legs were consistent with the identification as *pleschanka*, as was the bird's preference for perching 4 - 5 m up in Acacia trees.



Fig.1 White throated form of *Oenanthe pleschanka*, Ngulia Lodge, 27 November 1978

On 27 November 1978, during a particularly large and varied fall of migrants at Ngulia Lodge, seven wheatears were caught at the lights at night. Two of these were typical *O. pleschanka*; another first-year male, identified as *pleschanka* was typical in all respects except that its throat was white. The Ngulia bird (Fig.1) appeared identical to the Sultan Hamud example except that the trace of black on the sides of the neck was reduced; the axillaries and underwing coverts were blackish. The wing measured 94 mm and the tarsus 23 mm. The bill, legs and toes were weaker than in *O. oenanthe* (this is always quite noticeable in *pleschanka* in the hand), and the weight, 14.3 g, was in the typical Ngulia range for *pleschanka*. We were able to discount the possibility that some other Palearctic species was involved. The Black-

eared Wheatear *O. hispanica* requires comment here since it is of similar size to *pleschanka*, with a similar rump and tail pattern and a blackish underwing; moreover, it commonly has a white throat. The Ngulia bird was not *hispanica*, however, because *hispanica* has a pale mantle, uniform with the top of the head. Also, the black on the face did not extend up on to the forehead and above the eye as is usual in the race of *hispanica* (*melanoleuca*) which visits northeast Africa.

The white throated form is evidently unusual in the Pied Wheatear, it is not mentioned in the standard European field guides, and does not seem to have been noted previously in the Ethiopian region. However, it is known to occur rarely in both male and female birds (Witherby et al. 1943, Vaurie 1959, Hûe & Etchécopar 1970). Certainly it must be taken into account if any unusual pale throated wheatear is seen in East Africa.

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Received 10 May 1979.

RED-THROATED PIPIT *ANTHUS CERVINUS* AT NDOLA, ZAMBIA On 18 March 1979 at 17:30 I flushed a pipit *Anthus* sp. from short-grassed ground near a waterlogged area at the edge of Itawa swamps, Ndola (12°57'S, 27°47'E). My attention was drawn to the bird by its call on rising - a high-pitched rather metallic and not very loud single *see*, and by its markedly undulating flight. The bird flew for about 20 m, not rising more than 3 m above the ground. I flushed it about ten times, and each time it flew only a short distance before landing, either on a bare lump of earth or in grass. It did not run, and was only flushed on close approach. Eventually it flew into longer grass in a wetter area where it was impossible to see on the ground.

Excellent views of it on the ground and in flight were had through 10x glasses. It was smaller than a Plain-backed or Richard's Pipit (*A. leucophrys* or *A. novae-seelandiae*) both of which were present. The upperside, including crown and nape, was brown with broad dark centres to the feathers giving a heavily-streaked effect. The remiges and retrices were similar in colour to the back. In flight the rump was seen to be streaked. Pale edges to the greater and median wing coverts produced two pale lines across the folded wing. The superciliary stripe was broad and well-defined above and behind the eye, narrower and poorly-defined in front. The lores and ear-coverts were plain brown, rather dark, with a pale line below them and a more diffuse pale rear border to the ear coverts. The malar streak was well-defined and blackish. The underside had heavy black streaking in the form of large elongated spots beginning abruptly at the base of the throat and extending down the breast and all along the flanks below the folded wings; at least two lines of spots were visible along each flank. The spots were close together and some appeared to almost run into each other. The belly and under-tail coverts were white and unmarked. Chin and throat were unmarked and washed with buff, slightly pink, which extended over the spotted area of the breast and some way along the flanks, and also coloured the pale areas on the face and the superciliary stripe. Outer tail feathers were white.

The eye was dark, bill rather short and fine and appeared darkish, the legs were pale, the exact shade not determined. The bird called twice, the second time a slightly longer *seez* of the same pitch and quality as the first. Stance was not so upright as that of Richard's Pipit.

Yellow Wagtails *Motacilla flava* were in the same area on 18th. Heavy rain began at Ndola at 19:00 on 18th and continued for over 12 h. Neither the pipit nor the wagtails were present in the late afternoon of 19th at Itawa.

I am familiar with all the pipits which are known in Zambia and also with all the western Euroean species except *cervinus*. I sent a description and sketch of the bird to P.L. Britton, R.J. Dowsett, D.J. Pearson and D.I.M. Wallace, all of whom agree (*in litt.*) that it was *cervinus*. This species has not been recorded before from Zambia, and indeed Moreau (1972) gives its wintering range in East Africa only to northern Tanzania. P.L. Britton and D.J. Pearson (*in litt.*) give the most southerly East African records: Morogoro (6°50'S, 37°40'E) and Kilosa (6°50'S, 37°00'E) in the east and from Queen Elizabeth Park, Uganda in the west, where it is rare.

The Ndola record was some 1400 km south of Queen Elizabeth Park and 1200 km southwest of Kilosa. The habitat of light grass with cattle-trampled patches of mud was typical for the species in Africa (Moreau 1972).

P.B. Taylor, Box 415, Ndola, Zambia

Received 3 August 1979

Continued from inside front cover

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Tables, which should also be numbered, *should appear in the typescript*. Metric units should be used. If non-metric units were used in the original observation or experiment, the approximate metric equivalent should be given in brackets.

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A TRAPPING STUDY OF PALAEARCTIC PASSERINES AT NCHALO, SOUTHERN MALAWI

Dale B. Hanmer

Information available up to 1975 on the Palaearctic migrant warblers and thrushes in Malawi was published by Benson & Benson (1977), who gave details of arrival and departure, habitat and numbers, and some data on ringing recaptures. This paper summarizes data from netting and ringing at Nchalo during the six seasons 1973/74 to 1978/79. Details of weight, moult, habitat, numbers and *Ortstreue* are given for nine species, namely *Acrocephalus arundinaceus**, *A. griseldis*, *A. palustris*, *A. scirpaceus*, *A. schoenobaenus*, *Sylvia borin*, *Phylloscopus trochilus*, *Locustella fluviatilis* and *Luscinia luscinia*.

STUDY AREA

Nchalo (16°16'S., 34°55'E.) lies in the Rift Valley, beside the Shire River in southern Malawi, at an altitude of 60 m a.s.l. Temperatures are high: the mean is highest in October and November (28.5°C; mean maximum in both months is 35.5°C), decreasing to 26.0°C in April. During 1966-1978 annual rainfall averaged 680 mm (1978 was the wettest year since 1966, with 927 mm), with 95 per cent falling between December and March. The original trapping area in 1973-1974, about 6 ha, consisted of 3.5 ha of *Combretum-Commiphora* thicket with patches of rough grassland, 0.8 ha of *Acacia* woodland with fairly dense undergrowth of herbs and young trees, 0.25 ha of pond with bulrushes *Typha* sp. and the remainder lawns and garden with thick hedges, shrubberies and trees. By late 1977 less than 2 ha of dense vegetation (thicket, hedges, shrubberies and bulrushes) remained scattered in and round the garden; the rest, including the *Acacia*, had been cleared for cotton or maize cultivation. Between 48 and 54 m of mist net was in use for a monthly average of 20.7 - 24.2 d over six seasons, except in February (10.8 d) and March (12.7 d).

Some birds were caught at Mopeia, Moçambique, in the Zambezi delta (17°59'S., 34°44'E.) in 1972/73 (Hanmer 1976). These are mentioned in this paper where relevant; the numbers were small.

METHODS

All birds netted (between 05:30 - 09:00 hrs and 16:30 - 18:00 hrs on every day when netting was done) were weighed, measured, examined for moult, ringed and released. Weights were taken on a Pesola balance, to 1 g in larger species and 0.1 g in smaller ones. Moult scores of individual feathers were taken for primaries only, using 0 = old, 1 = missing or in pin, 2,3,4 = growing and 5 = new. The primaries (P) were numbered 1 to 10 centrifugally and overall scores (from 0 to 50) were obtained by summing the scores of individual feathers. When birds were caught twice during the same moult, primary scores were used

*English names are given in the species' accounts.

to estimate the duration of primary moult, on the assumption that the score increased linearly with time (cf. Newton 1967).

SPECIES ACCOUNTS

Acrocephalus arundinaceus Great Reed Warbler

This is the most common migrant warbler at Nchalo between mid December and early April (extreme dates are given in Table 1), in all types of vegetation, most frequently in thicket, bulrush and long grass, but often seen in the open, in a small mulberry *Morus nigra* by the house, for example. In the evening there appeared to be a move from thicket into bulrush. Ringing has shown that some birds return annually to Nchalo: 8 per cent of birds ringed have been recaptured in subsequent seasons (see Table 2). Some remain for most of the season; birds ringed in November/December have been recaptured up to early February, while those ringed in January/February have been recaptured in March/April and the following December. Birds ringed in March/April have only been recaptured in following seasons from late January, suggesting that they did not normally arrive at Nchalo until late in the season. Figure 1 overleaf shows the number of birds caught per netting day ($\times 10$) and suggests that many are on passage southwards during December/January. There is no indication, however, of a major northward passage in March/April. Birds sang from arrival and throughout the season.

TABLE 1

Numbers of Palaeartic migrants caught at Nchalo between 1973/74 and 1978/79.
The number of netting days in each season is given as are
extreme capture dates.

| Species | 73/4* | 74/5 | 75/6 | 76/7 | 77/8 | 78/9 | Total | 1st - last date |
|-------------------------|-------|------|------|------|------|------|-------|-----------------|
| <i>A. arundinaceus</i> | 11 | 96 | 54 | 63 | 16 | 26 | 266 | 25.11 - 16.4 |
| <i>A. griseldis</i> | 3 | 24 | 9 | 22 | 3 | 5 | 66 | 27.11 - 12.4 |
| <i>A. scirpaceus</i> | 0 | 0 | 0 | 4 | 1 | 2 | 7 | 7.1 - 7.4 |
| <i>A. palustris</i> | 12 | 21 | 19 | 17 | 6 | 8 | 83 | 24.11 - 23.4 |
| <i>A. schoenobaenus</i> | 5 | 18 | 4 | 58 | 8 | 17 | 110 | 27.11 - 24.4 |
| <i>S. borin</i> | 3 | 73 | 42 | 35 | 14 | 22 | 189 | 25.10 - 9.4 |
| <i>P. trochilus</i> | 1 | 0 | 0 | 2 | 1 | 5 | 9 | 9.11 - 13.4 |
| <i>L. fluviatilis</i> | 1 | 1 | 0 | 0 | 1 | 0 | 3 | 21.12 - 30.3 |
| <i>L. luscinia</i> | 3 | 24 | 11 | 12 | 5 | 2 | 57 | 5.12 - 2.4 |
| Netting days | 54 | 173 | 134 | 117 | 102 | 125 | 705 | |

*Netting confined to March/April.

Table 3 shows the state of the flight feathers in all birds caught. Most arrived already moulted (some had slight head and body moult). A few arrived in suspended moult, with P1-7 new or with all primaries new but some secondaries old (a few had some head and body moult), but one bird had P1-3 new and all the rest of the flight feathers old. A few arrived unmoulted (some were first year, age not recorded in the others) and started moult in late December or early January. All but one bird caught in February had completed primary moult,

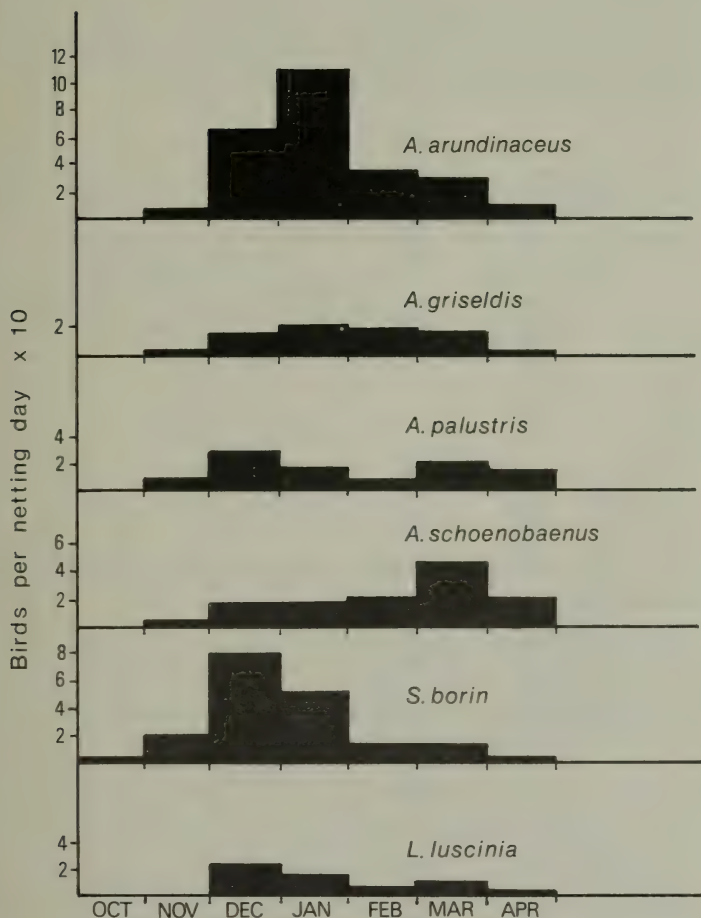


Fig.1 Monthly capture rates for six Palaearctic passerines at Nchalo expressed as the mean daily catch x10.

Data for the six seasons 1973/4-1978/9 are amalgamated.

as had all caught in March; one caught on 6 April had completed primary but not secondary moult, this bird having been caught earlier on 17 January with $P=9$. Generally two primaries were growing at one time in each wing, but in birds starting moult in January, three was more common during the growth of $P1-5$. Duration of primary moult estimated for three recaptured birds was 85, 87 and <96 d. Many birds had a moult of head and body in March/April when wing

moult was complete.

Weight is summarized in Fig.2. November birds were light, but some December ones were heavy (>35 g), suggesting that they might still be on passage to areas further south. Mopeia weights for eight birds in December/January were similar, ranging 25 - 34 g (mean 28.9 g). Weights increased in March but departure weights did not appear particularly high; of 23 late March/April birds the five heaviest weighed 35 - 38 g.

TABLE 2

Numbers of various migrants ringed at Nchalo, 1973/4-1978/9 and numbers recaptured once only, twice only, three or four times only during the season of ringing (=1st year) or in subsequent seasons

| Species | Number ringed | Number recaptured in | | | | | | | | | |
|-------------------------|---------------|----------------------|----|----|----|----------|----|----|--------|--------|----|
| | | 1st year | | | | 2nd year | | | 3rd yr | 4th yr | |
| | | 1x | 2x | 3x | 4x | 1x | 2x | 3x | 1x | 2x | 1x |
| <i>A. arundinaceus</i> | 201 | 22 | 5 | | | 12 | 1 | 1 | 1 | | 1 |
| <i>A. griseldis</i> | 47 | 5 | | | 1 | 2 | 1 | | 1 | 1 | |
| <i>A. scirpaceus</i> | 5 | 2 | | | | | | | | | |
| <i>A. palustris</i> | 73 | 3 | | | | 3 | | | | | 2 |
| <i>A. schoenobaenus</i> | 100 | 5 | | 1 | | | | | | | |
| <i>S. borin</i> | 160 | 7 | 1 | | | 6 | | | 3 | | |
| <i>L. luscinia</i> | 48 | 3 | | | | 1 | 1 | | 1 | | |

Acrocephalus griseldis Basra Reed Warbler

This species was caught in small numbers (about one for every five *arundinaceus*) between mid December and late March (extreme dates in Table 1) and was found in dense vegetation similar to *arundinaceus* habitat, but less often in bulrush and seldom in the mulberry or other open vegetation. Birds tended to return annually to Nchalo: 10.5 per cent of the birds ringed were recaptured in subsequent seasons (see Table 2). Some appeared to remain at the site for most of the season; thus, two mid December ringed birds were recaptured in late March, and three mid January birds in late March/early April. Figure 1 shows the number of birds caught per netting day and does not suggest any major passage to areas further south in December/January or northwards in March/April. Song was identified in January 1979 and heard thereafter until April. It differs from the song of *arundinaceus* in that it is softer, less grating.

Table 3 shows the state of the flight feathers in all birds caught. Many must have arrived already moulted (a few had some head and body moult). Some were in suspended moult early in the season, usually with P1-4 new, but in two cases with new primaries and some old secondaries (a few had some head and body moult). Some arrived unmoulted and started moult in January. One bird showing evidence of an earlier suspended moult after the growth of P4, had completed primary and almost completed secondary moult on 27 February. One first year bird had a primary score of 11 on 4 February and another, age unknown, showing no signs of suspension, had a primary score of 44 on 29 March; these birds would have been unlikely to complete moult before April. Usually, two primaries were growing at one time on each wing, but one bird in late January was growing P1-4 all at once. There was some moult of head and body in March/April in birds with wing moult complete.

Weight is summarized in Figure 1. There were a few fairly heavy birds (>19 g) in December and January, suggesting a small passage to areas further south.

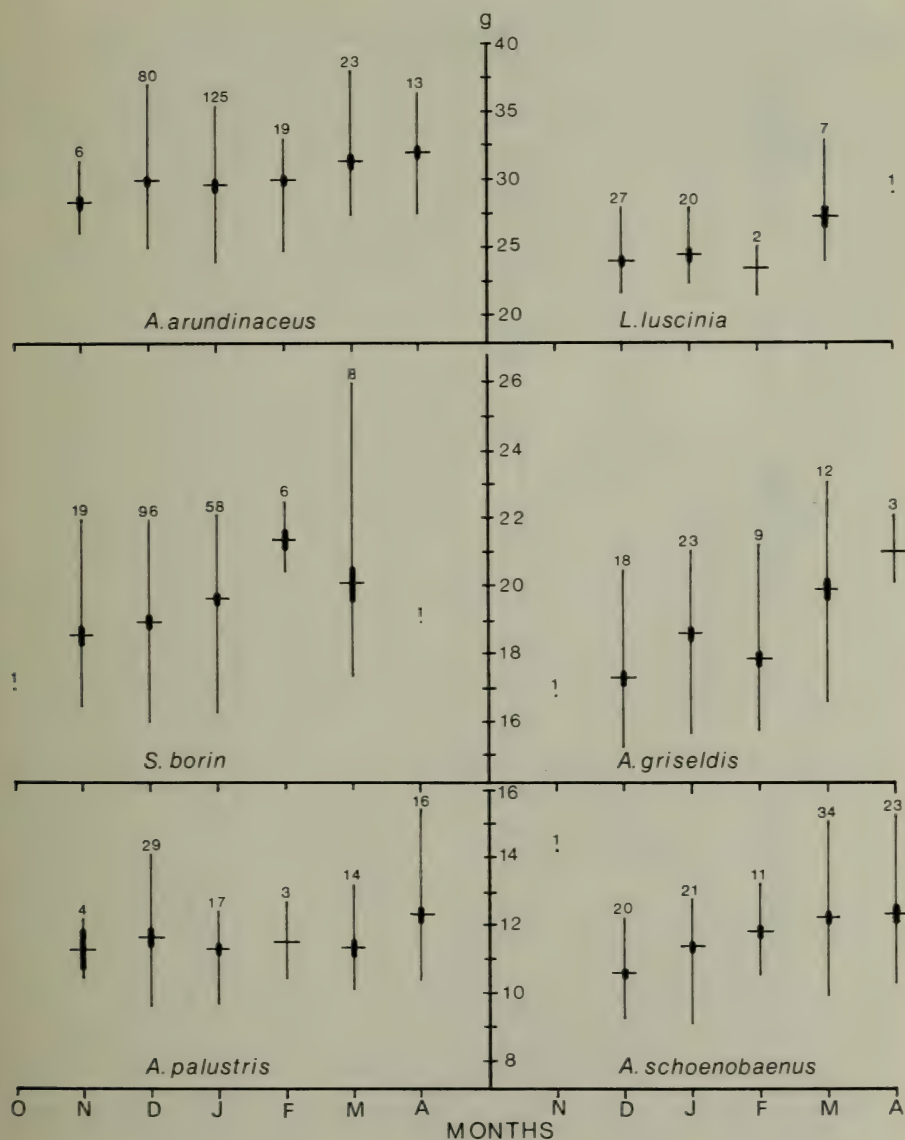


Fig.2 Summarized monthly weight data for various migrants caught at Nchalo, 1973/4-1978/9. Ordinate: range of weights in each sample. Horizontal bar: mean weight of the sample. Solid rectangle: 2x S.E. of the mean. Numeral at top of ordinate (or above point): number of birds in sample.



Fig. 3 Primary moult scores of three migrant species caught at Nchalo, plotted against date. Numbers of unmoulted birds ($P=0$) and completely moulted birds ($P=50$) are shown (in the histograms) grouped by 10 d periods. Scores of two recaptured *A. schoenobaenus* are joined by straight lines.

Data for 1973/74 to 1978/79 are amalgamated.

Mopeia weights for six birds in December/January were similar, ranging 16 - 20 g (mean 18.5 g). Weight increased towards the end of March and of 11 late March/April birds the five heaviest weighed over 20 g.

Acrocephalus scirpaceus Reed Warbler

This species is uncommon in the Nchalo netting area. The first bird was identified in February 1977 (Hanmer 1977) and six have been caught since (see Table 1). The habitat in the netting area appeared to be bulrush and the bushes and long grass adjacent to the pond. Song has not been noted.

The earliest caught bird (7 January) was just starting primary moult (score 1); others were in later stages of moult and the two caught on 7 April had finished (see Table 3). The state of the primaries of one of these April birds indicated that suspended moult had occurred, P1-4 being older than P5-10. One bird caught with a primary score of 1 and again at 19, provided an estimate of 82 d for moult duration.

Two early April birds averaged 11.6 g, no heavier than birds caught in January/February.

Acrocephalus palustris Marsh Warbler

This is a fairly common species in the Nchalo netting area, between mid December and early April (extreme dates in Table 1), in all types of vegetation (including the mulberry), but uncommon near the pond. Some birds were shown to return annually to Nchalo (see Table 2), 7 per cent of those ringed being retrapped in subsequent seasons. One mid December ringed bird was recaptured in late February, but the species is probably not sedentary at Nchalo, for few birds were recaptured during the same season (cf. *arundinaceus* and *griseldis*). Figure 1 suggests that most birds caught were on passage with southward movement continuing through January and northward movement occurring during March and April. Song has not been noted.

Moult was recorded from late December, but most birds appeared to start in January and finish in March; however, one bird had a primary score of 44 as late as 17 April (see Fig.3). Usually 2-3 primaries were growing at one time on each wing, but in February two birds were growing P7-10 and P6-10 respectively at one time.

Weight is summarized in Figure 2. The high weights of some December birds (up to 14 g) support the supposition of a passage movement in this month. Weights of 11 November/January Mopeia birds were higher, ranging 11.0 - 13.5 g (mean 12.2 g). Maximum weight was not attained until April, just prior to departure, when of 16 weights the 7 highest ranged 13.0 - 15.4 g.

Acrocephalus schoenobaenus Sedge Warbler

This is a common species at Nchalo, in some years, from mid December to mid April (extreme dates in Table 1), in bulrush, long grass and thickets adjacent to the pond. There have been no recaptures in a subsequent season and very few in the same season, suggesting that few birds are sedentary in the netting area (see Table 2). Possibly they pass through from nearby cane fields to reedbeds *Phragmites* sp. on the Shire River 0.25 km distant, where large numbers occur. One bird was ringed in mid January and recaptured in late April, otherwise all recaptures occurred within a month of ringing. Figure 1 gives no indication of a passage southwards in December/January, but does suggest a movement northwards in late March/April. Birds sing between mid January and April.

Three birds caught had apparently arrived already moulted (in very new plumage on 22 December, 5 and 8 January respectively), and some showed suspended moult early in the season (usually P1-3 or P1-4 new). One bird started moult in late November, but most started or continued suspended moult in January. Two birds started moult in early March. Many birds had completed

primary moult by late March and nearly all by mid April (see Fig.3). Two recaptured birds gave estimates of primary moult duration of 59 and 75 d respectively.

Weight is summarized in Figure 2. One bird was heavy (14.2g) in late November, and possibly still on passage southwards. Mopeia weights in December/January for four birds ranged 11.5 - 13.1g (mean 12.1g). Major weight gains were not made until late March/April, when six out of 33 birds weighed 14 - 16g.

TABLE 3

State of the flight feathers of four species of Acrocephalus caught at Nchalo

| Species | No. | State of flight feathers | Number of birds in (months) | | | | | |
|-------------------------|-----|--------------------------|-----------------------------|-----|-----|-----|-----|-----|
| | | | Nov | Dec | Jan | Feb | Mar | Apr |
| <i>A. arundinaceus</i> | 266 | Old | 2 | 7 | 5 | | | |
| | | Active moult | 1 | 2 | 9* | 3* | 4* | 1* |
| | | Suspended moult | - | 1 | 5 | | | |
| | | New | 3 | 70 | 106 | 16 | 19 | 12 |
| <i>A. griseldis</i> | 66 | Old | - | 3 | 1 | | | |
| | | Active moult | - | 1 | 4 | 2* | 1 | |
| | | Suspended moult | 1 | 6 | 2 | | | |
| | | New | - | 8 | 16 | 7 | 11 | 3 |
| <i>A. schoenobaenus</i> | 110 | Old | - | 18 | 8 | 1 | | |
| | | Active moult | 1 | 1 | 6 | 6 | 11* | 6* |
| | | Suspended moult | - | - | 5 | 1 | | |
| | | New | - | 1 | 2 | 3 | 23 | 17 |
| <i>A. scirpaceus</i> | 7 | Old | - | - | 1 | | | |
| | | Active moult | - | - | 1 | 3 | | |
| | | New | - | - | - | - | - | 2 |

*Some with primaries complete, secondaries not complete.

Sylvia borin Garden Warbler

This is a very common species in the Nchalo netting area, between late November and mid March, in thicket and shrubbery, open grassland with scrub and in the mulberry, but seldom near the pond. Capture rates shown in Figure 1 suggest a large movement southwards in December/January, but give no indication of a northward passage in March/April. Six per cent of birds ringed were retrapped in the same area in a subsequent season (see Table 2). Recaptures indicated that most birds were not sedentary at Nchalo; of 116 ringed in October to December, seven were retrapped in November/December, but none later in the season. Four October/December birds were recaptured in subsequent seasons in November/December and three in mid to late January. One bird ringed in March recaptured the following December. Song has been heard in November, but mainly from January to April.

Most wintering birds started primary moult in December, but a few not until early January; it was typically completed by mid to late March (see Fig.3). Three to four primaries were usually growing at one time in each wing.

Weights are summarized in Figure 2. Most birds were fairly light (<20g) between November and January. For the same period, Mopeia weights for 22 birds were slightly lower, ranging 16.0 - 20.3g (mean 18.0g). Heavier weights were

were not noted until late March/April, when three out of seven birds caught ranged 22 - 26g.

Phylloscopus trochilus Willow Warbler

This is not a common species in the Nchalo netting area, although fairly common in the woodlands of the escapments. The first birds were caught in November, but the species has been heard singing from late October to early April (although apparently silent between late December and early February).

Three November birds weighed 7.8, 10.0 and 10.2g, four in December 7.8 - 8.9g (mean 8.2g) and two in April 9.2 and 10.5g.

Locustella fluviatilis River Warbler

Three were caught at Nchalo: one on 21 December (first winter bird) weighed 17.5g and was not moulting. Two on 15 and 30 March weighed 18.0 and 18.2g, and had primary moult scores of 39 and 44 respectively. Two were caught in bulrush and the third in thicket by the pond. At Mopeia one bird was shot on 11 January in a low scrubby tree with longish grass underneath. It weighed 18g and was moulting P1-3 (score 4).

Luscinia luscinia Sprosser

This was a fairly common visitor to Nchalo until 1977, but was more affected than other species by the removal of the Acacia woodland and the thickets surrounding it. Few have been caught elsewhere in the netting area. They were usually present between mid December and late March (extreme dates in Table 1). Figure 1 suggests a passage of birds southwards in December/January and perhaps a northward movement in March. A few birds may be sedentary at Nchalo during January to March, for two ringed in January were recaptured in March, and one ringed in March was recaptured in subsequent seasons in Late December, January and March. However, birds ringed in December have only been recaptured in December of the same or subsequent seasons. Song has not been noted.

Weights are summarized in Figure 2. There were high weights in December/January (>25g), suggesting that some birds were still on passage. Weight did not appear to increase in spring until late March, but five late March/April birds weighed 25 - 33g.

DISCUSSION

Migration timing, wintering and *Ortstreue*

Capture rates at Nchalo revealed a decrease in numbers of most thicket species in 1977/78 and 1978/79 (Table 1), probably due to habitat destruction and disturbance, or mortality resulting from insecticide spraying in 1976 and 1977. *Acrocephalus schoenobaenus* shows fluctuations in annual numbers which are probably not related to habitat disturbance.

Hanmer (1976) recorded the discovery of *A. griseldis* at Mopeia (identification by Clancey (1975)). The present paper documents regular wintering of this species in southern Malawi. Elsewhere in Africa, the only known regular wintering sites appear to be on the lower Tana River in eastern Kenya (Pearson, Britton & Britton 1978). In Malawi and Mocambique the species occurs in thicket, long grass, scrub, reeds and bulrush; in eastern Kenya it also occurs in long grass and thicket, but typically seems to frequent low bushes on seasonally flooded ground (D.J. Pearson *in litt.*).

The main arrival dates of *A. palustris*, *A. griseldis* and *Luscinia luscinia* fit well with passage dates for these species at Ngulia (Pearson & Backhurst 1976a, 1978) and elsewhere in eastern Kenya (D.J. Pearson *in litt.*), but early *Sylvia borin* and *Phylloscopus trochilus* at Nchalo probably arrive via Uganda and western Kenya where passage is already well established during October (Pearson 1972 and *in litt.*). *Acrocephalus scirpaceus*, *A. arundinaceus* and *A. schoenobaenus* are almost absent from passage movements through eastern

Kenya (Pearson & Backhurst 1976a, 1978), and these three species presumably reach Malawi via Uganda and western Kenya. However, Pearson (1975) suggests that most passage *A. arundinaceus* and *A. schoenobaenus* overfly Uganda and Kenya, as the two species are scarce there until December. The main times of spring departure from Nchalo fit for all species with passage dates in Uganda and/or early passage dates in central Kenya (Pearson 1972, Pearson & Backhurst 1976b, Pearson, Backhurst & Backhurst 1979). *A. palustris* and *A. schoenobaenus*, which are the last species to depart from Nchalo (mid to late April), are frequently recorded on passage through Kenya until early May; the other species, which depart earlier from Nchalo, pass through Kenya mainly between 5 and 25 April (Pearson & Backhurst 1976b).

Recaptures in Zambia (Tree 1965, 1966), South Africa (Hewitt 1967), Uganda (Pearson 1972) and Zimbabwe-Rhodesia (Manson & Manson 1976) have shown that Palearctic warblers are likely to return to the same wintering area annually and may remain sedentary there for some time. Fidelity to the Nchalo wintering site was demonstrated in the case of *A. arundinaceus*, *A. palustris*, *A. griseldis* and *Sylvia borin*. *A. arundinaceus* and *A. griseldis* in particular were frequently retrapped, and many were clearly sedentary over a period of months.

Moult

Of the six main species caught at Nchalo, all except *L. luscinia* are known to moult completely in Africa. All *A. palustris* and *S. borin* and most *A. schoenobaenus* moulted after arrival at Nchalo. However, some *A. schoenobaenus* and most *A. arundinaceus* and *A. griseldis* were already partly or fully moulted on arrival, and there appears to be a major moulting area for these species in northeast Africa. In Kenya and Uganda, most wintering *A. schoenobaenus* and practically all *A. arundinaceus* are newly moulted in December/January when they arrive (Pearson 1973, 1975, Pearson, Backhurst & Backhurst 1979). Thus, Malawian wintering *A. schoenobaenus* in particular show more tendency to delay moult until after arrival than do East African birds. For *A. arundinaceus* the proportion of Nchalo birds moulting before arrival (about 80 per cent) was similar to that given for Malawi and Zambia by Pearson (1975). In *A. griseldis* the incidence of completed and suspended moult among Nchalo arrivals was similar to that observed at Ngulia (eastern Kenya) passage birds (Pearson & Backhurst 1976a, D.J. Pearson *in litt.*).

Adult *Locustella fluviatilis* caught at Ngulia during November and December all appeared to have recently moulted the outer primaries in reverse order (Pearson & Backhurst 1976a). The unmoulted Nchalo bird showed no sign of such a moult and the other three were in normal centrifugal moult during January-March, again with no sign of newer outer primaries. All four were presumably first year birds.

In *Sylvia borin* the typical duration of primary moult at Nchalo (see Fig. 3) appeared to be similar to that found in Uganda (Pearson 1973) although its timing may have been slightly earlier. For *A. palustris* and for *A. schoenobaenus* the Nchalo data plotted in Figure 3 suggest a typical duration of 60 to 80 d. No moult has been reported in *A. schoenobaenus* caught in East Africa during April/May (Pearson 1973, Pearson, Backhurst & Backhurst 1979); this contrasts with the situation at Nchalo where 70 per cent of the birds caught in April were still moulting flight feathers.

Weights

November-December weights at Nchalo were similar to those reported for the same species in Uganda and/or eastern Kenya (Pearson 1971, Pearson & Backhurst 1976a). Some birds were heavy, suggesting that they might still be on passage with reserves for further flight southwards, particularly *A. arundinaceus*, *A. palustris*, *A. schoenobaenus* and *P. trochilus*.

In general, there seems to be no major weight loss during moult at Nchalo

and the mean monthly weight remained fairly constant in most species until March. Even in late March and April weights 20 - 50 per cent above the January-February average were found only in a few birds, mostly *A. griseldis*, *A. palustris*, *A. schoenobaenus* and *L. luscinia*. Maximum weights in late March-April were low compared to some for Uganda and Kenya, where, for example, *A. arundinaceus* has reached 52.5 g, *A. scirpaceus* 17.0 g, *A. schoenobaenus* 21.5 g and *P. trochilus* 14.5 g (Pearson 1971 and in litt., Pearson, Backhurst & Backhurst 1979). Southern Malawi birds probably fatten further north in Africa for the flight to the Palaearctic. One March *L. luscinia* was extremely heavy (33 g); at Ngulia the mean weight recorded during a mid April fall was 28.2 g, but none reached 33 g (Britton & Britton 1977). This species may reach weights in Malawi similar to maximum weights near the equator, but in view of the estimates of Nisbet, Drury & Baird (1963) it seems unlikely that even a 33 g bird could reach the Palaearctic without a stopover in East Africa.

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PRELIMINARY COMPARISONS BETWEEN THE AVIFAUNAS
OF THE NORTH NANDI AND KAKAMEGA FORESTS

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The North Nandi Forest (on the equator and at 35°E.) lies at c.2000 m above sea level on the edge of the Nandi escarpment about 5 km east of Kakamega Forest which is some 300 m lower (Fig.1). Originally the two forests must have been connected, both directly by forest extending down the escarpment and indirectly via the South Nandi Forest, but they now form separate forest blocks. The gazetted North Nandi Forest Reserve covers 119 km², within which indigenous forest covered about 93 km² in 1976, having decreased by about 3 - 5 km² per year over the previous 13 years (Ochanda 1978). There are no published records of the avifauna; it would be expected to contain elements of both the central African avifauna (of which Kakamega Forest is normally considered the eastern limit) and the East African highland avifauna centred east of the Kenya rift valley. Some records that must originate from North Nandi are included in Zimmerman and Forbes-Watson's (1972) list of species from the 'Kakamega-Nandi region' but this list does not make clear which species are known from which part of this region.

We visited the North Nandi Forest from 3 to 9 January 1978. Our first camp, about 2 km north of Chepyagoris (= Chepyegoris), was in forest so degraded by browsing cattle that we could not set mist-nets, so, on 4 January we moved south to dense forest along a logging track near a forest guard post 2 km west of Kapkuto village. We set up mist-nets that day and the next, operating them continuously until late on 8 January. In addition to birds caught in nets, we identified as many species as we could by general observation, and collected 25 specimens of 24 species for the National Museums of Kenya. In view of the threatened status of this forest and many of its birds, we did not attempt to make a fully representative collection.

RESULTS

Comparisons with the well known Kakamega Forest avifauna are based partly on Zimmerman (1972) and partly on mist-netting data (chiefly AWD's) from the area immediately north of the Kakamega Forest Station, where Zimmerman did most of his work and AWD has netted sporadically from 1976 to 1979. Our comparisons are therefore strictly between two sites, one in each forest, and may need to be modified if data from other sites in either forest become available.

The 80 species that we identified are listed in Table 1. The list is of course incomplete, representing only 10 man-days of effort that was concentrated primarily on mist-netting in a very small area. Nevertheless, the list shows that the avifauna is similar to that of the Kakamega Forest, containing a number of species for which Kakamega (or Kakamega and Elgon) has previously been the only known locality in Kenya (notably *Phylloscopus budongoensis*, *Kakamega poliothorax*, *Cossypha cyanocampter*, *Neocossyphus poensis*, *Andropadus masukuensis* and *Bleda syndactyla*). There are, however, some interesting differences, some of which can be attributed to the higher altitude of the North Nandi Forest; these are discussed below.

1. *Trochocercus* spp. and *Erannornis longicauda*: crested flycatchers.
T. nigromitratus is the only species found within the Kakamega Forest, where it is netted quite frequently; in North Nandi we caught only *T. albonotatus*. This is probably a genuine case of altitudinal replacement, since *T. albonotatus* is characteristic of montane forest, and *T. nigromitratus* of lowland forest, in Africa generally (Hall & Moreau 1970). *E. longicauda* occurred outside the forest in isolated trees, and along the edge, at North Nandi as it does at Kakamega.

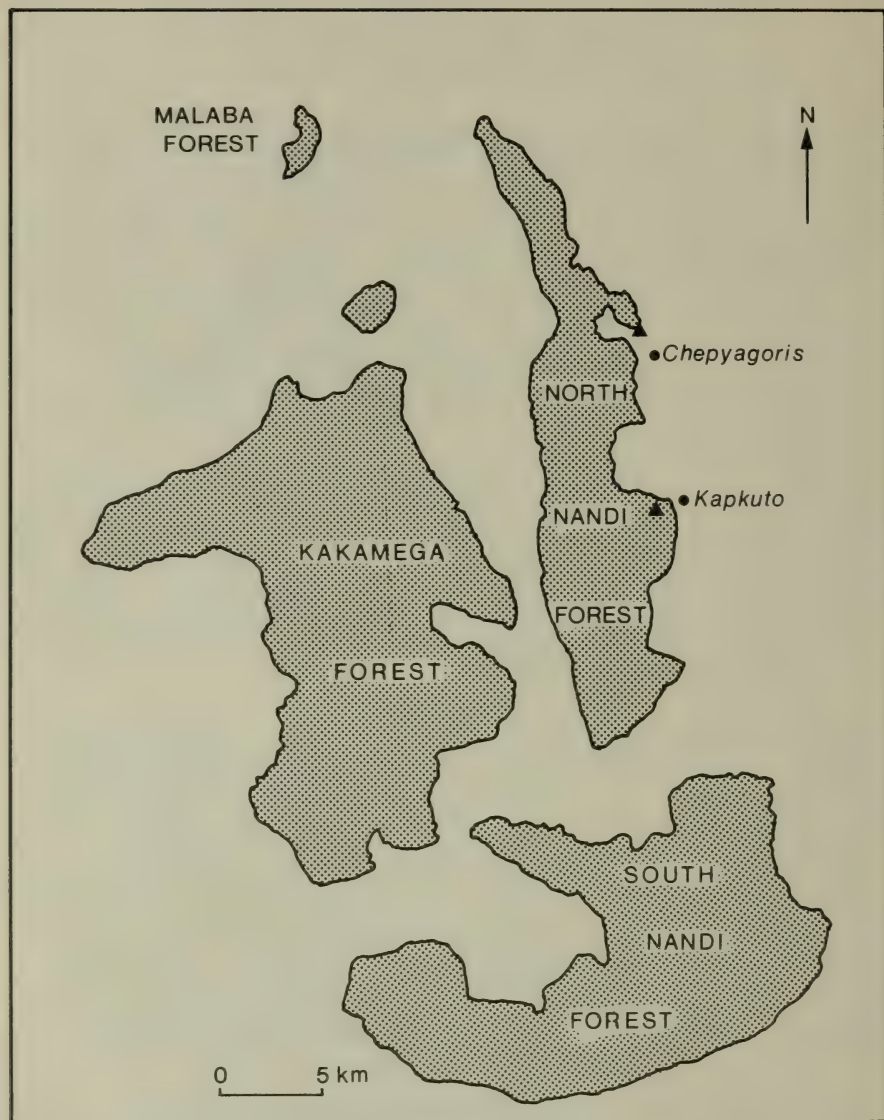


Fig. 1 Locations of places named in the text.

▲ = camp, ● = village

2. Timaliidae: babblers.

In Kakamega Forest four species of *Trichastoma* are netted: *albipectus*, *rufipennis*, *fulvescens* and *pyrrhoptera* in descending order of abundance, *pyrrhoptera* being much the rarest. At North Nandi we caught only *pyrrhoptera* and *albipectus*; it is tempting to ascribe this difference partly to altitudinal replacement of the lowland *rufipennis* by the montane *pyrrhoptera*, again following Hall & Moreau (1970), but we resist this temptation because in Malaba Forest, 10 km north of Kakamega Forest but at the same altitude, *pyrrhoptera* is also the most commonly netted *Trichastoma* (AWD pers. obs., see also E.A.N.H.S. 1978:122).

Kakamega poliothorax is very rare at the Kakamega Forest Station site. Zimmerman (1972), for example, did not record it at all and C.F. Mann described it as scarce in the Kakamega and South Nandi Forests between 1560 and 1700 m (Mann, Burton & Lennerstedt 1978). It is apparently more common in North Nandi, where we caught four.

We have never caught or seen the babbler *Alcippe abyssinica* at Kakamega Forest Station, but at North Nandi we netted nine and are confident that its abundance there represents a genuine altitudinal difference.

3. *Sylvietta leucophrys* White-crowned Crombec.

This species does not occur in Kakamega Forest, but at North Nandi we caught three and saw it often. It is characteristic of montane forest throughout its range (Hall & Moreau 1970).

3. *Indicator* spp.: honeyguides.

We caught five individuals of three species, far more than would be caught at Kakamega in a comparable amount of netting time, but we do not attribute this to a real avifaunal difference between the two forests. We have noticed elsewhere that honeyguides seem to be attracted to the smoke of a wood fire, and at North Nandi most of our nets were within 100 m of a large camp-fire whereas at Kakamega we do not light fires. It seems likely that the fire at North Nandi attracted more honeyguides into the vicinity of the nets than would normally have been there.

4. Pycnonotidae: greenbuls.

Twelve pycnonotids occur in the Kakamega Forest, apart from the ubiquitous *Pycnonotus barbatus*; we recorded only six species at North Nandi. Some of the notable absences were of species that are rare even at Kakamega, and might have escaped notice in a week spent there, notably *Andropadus ansorgei*, *A. gracilis* and *Phyllastrephus baumanni*, and their absence from our list might reflect inadequate searching. Our failures to find *Chlorocichla laetissima*, a noisy and conspicuous species at Kakamega, and *Andropadus virens* which is commonly netted there, are harder to explain.

5. *Platysteira* spp.: wattle-eyes.

Four species occur regularly in Kakamega Forest, all of which would normally be caught in a netting effort comparable to that used at North Nandi. However, we caught none of these at North Nandi, instead recording only *P. peltata* which is absent from Kakamega Forest and which commonly replaces *P. cyanea* in montane forest (Hall & Moreau 1970).

DISCUSSION

Only 59 of the 80 species we recorded in North Nandi would normally be regarded as forest birds; this number of forest species is clearly incomplete and so cannot be compared quantitatively with the 100-plus species listed by Zimmerman (1972) for his study area in Kakamega Forest. However, it is perfectly valid to compare the species we caught in mist-nets at North Nandi with those caught with a comparable netting effort at the Kakamega Forest Station site,

TABLE 1

Species recorded in North Nandi Forest 3 - 9 January 1978

| | | |
|------------------------------------|----------------------------------|-----|
| <i>Bostrychia hagadash</i> | Hadada Ibis | |
| <i>Circaetus pectoralis</i> | Black-chested Harrier Eagle | |
| <i>Lophaelus occipitalis</i> | Long-crested Eagle | E |
| <i>Milvus migrans</i> | Black Kite | |
| <i>Balearica pavonina</i> | Crowned Crane | |
| <i>Turtur tympanistria</i> | Tambourine Dove | F |
| <i>Poicephalus meyeri</i> | Brown Parrot | |
| <i>Chrysococcyx cupreus</i> | Emerald Cuckoo | E |
| <i>C. klaas</i> | Klaas' Cuckoo | |
| <i>Cuculus solitarius</i> | Red-chested Cuckoo | FE |
| <i>Colius striatus</i> | Speckled Mousebird | |
| <i>Bycanistes subcylindricus</i> | Black and White Casqued Hornbill | FE |
| <i>Tockus alboterminatus</i> | Crowned Hornbill | F |
| <i>Merops oreobates</i> | Cinnamon-chested Bee-eater | E |
| <i>Phoeniculus bollei</i> | White-headed Wood Wood Hoopoe | F |
| <i>Gymnobucco bonapartei</i> | Grey-throated Barbet | Ec |
| <i>Lybius bidentatus</i> | Double-toothed Barbet | E |
| <i>Pogoniulus bilineatus</i> | Golden-rumped Tinkerbird | Fc |
| <i>Trachyphonus purpuratus</i> | Yellow-billed Barbet | Fc |
| <i>Indicator exilis</i> | Least Honeyguide | Fc |
| <i>I. indicator</i> | Black-throated Honeyguide | E |
| <i>I. minor</i> | Lesser Honeyguide | F |
| <i>I. variegatus</i> | Scaly-throated Honeyguide | F |
| <i>Campethera tullbergi</i> | Fine-banded Woodpecker | Fc |
| <i>Dendropicos fuscescens</i> | Cardinal Woodpecker | F |
| <i>Coracina caesia</i> | Grey Cuckoo Shrike | FEC |
| <i>Estrilda nonnula</i> | Black-crowned Waxbill | |
| <i>Nigrita canicapilla</i> | Grey-headed Negrofinch | E |
| <i>Spermophaga ruficapilla</i> | Red-headed Bluebill | Fc |
| <i>Serinus burtoni</i> | Thick-billed Seed-eater | E |
| <i>Psolidoprocne albiceps</i> | White-headed Rough-wing | |
| <i>P. pristoptera</i> | Black Rough-wing | |
| <i>Dryoscopus angolensis</i> | Pink-footed Puff-back | FE |
| <i>Laniarius luehderi</i> | Luhder's Bush Shrike | FEC |
| <i>Lanius mackinnoni</i> | Mackinnon's Shrike | E |
| <i>Malacotus bocagei</i> | Grey-green Bush Shrike | FE |
| <i>Anthus trivialis</i> | Tree Pipit | |
| <i>Motacilla aguimp</i> | African Pied Wagtail | |
| <i>M. clara</i> | Mountain Wagtail | |
| <i>Melaenornis chokolatina</i> | White-eyed Slaty Flycatcher | E |
| <i>Muscicapa adusta</i> | Dusky Flycatcher | E |
| <i>Erannornis longicauda</i> | Blue Flycatcher | Ec |
| <i>Platysteira peltata</i> | Black-throated Wattle-eye | F |
| <i>Trochocercus albonotatus</i> | White-tailed Crested Flycatcher | Fc |
| <i>Apalis cinerea</i> | Grey Apalis | FEC |
| <i>A. pulchra</i> | Black-collared Apalis | Ec |
| <i>A. rufogularis</i> | Buff-throated Apalis | F |
| <i>Bathmocercus cerviniventris</i> | Black-faced Rufous Warbler | F |
| <i>Camaroptera brachyura</i> | Grey-backed Camaroptera | E |
| <i>C. chloronata</i> | Olive-green Camaroptera | F |
| <i>Cisticola chubbii</i> | Chubb's Cisticola | C |

[Continued opposite

TABLE 1 continued:

| | | |
|----------------------------------|----------------------------------|-----|
| <i>Phylloscopus budongoensis</i> | Uganda Woodland Warbler | F |
| <i>Prinia bairdii</i> | Banded Prinia | F |
| <i>Sylvietta leucophrys</i> | White-browed Crombec | Fc |
| <i>Alcippe abyssinica</i> | Abyssinian Hill Babbler | F |
| <i>Kakamega poliothorax</i> | Grey-chested Illadopsis | Fc |
| <i>Trichastoma albipectus</i> | Scaly-chested Illadopsis | Fc |
| <i>T. pyrrhoptera</i> | Mountain Illadopsis | F |
| <i>Alethe poliocephala</i> | Brown-chested Alethe | F |
| <i>Cossypha cyanocampter</i> | Blue-shouldered Robin Chat | Fc |
| <i>C. niveicapilla</i> | Snowy-headed Robin Chat | F |
| <i>Neocossyphus poensis</i> | White-tailed Ant Thrush | Fc |
| <i>Sheppardia aequatorialis</i> | Equatorial Akalat | Fc |
| <i>Turdus abyssinicus</i> | Northern Olive Thrush | E |
| <i>Nectarinia olivacea</i> | Olive Sunbird | F |
| <i>N. preussi</i> | Northern Double-collared Sunbird | E |
| <i>N. verticalis</i> | Green-headed Sunbird | E |
| <i>Parus albigentris</i> | White-bellied Tit | E |
| <i>P. funereus</i> | Dusky Tit | FE |
| <i>Ploceus insignis</i> | Brown-capped Weaver | F |
| <i>P. melanogaster</i> | Black-billed Weaver | F |
| <i>Andropadus curvirostris</i> | Cameroon Sombre Greenbul | Fc |
| <i>A. gracilirostris</i> | Slender-billed Greenbul | E |
| <i>A. latirostris</i> | Yellow-whiskered Greenbul | FEC |
| <i>A. masukuensis</i> | Shelley's Greenbul | F |
| <i>Bleda syndactyla</i> | Bristlebill | Fc |
| <i>Phyllastrephus placidus</i> | Placid Greenbul | Fc |
| <i>Pycnonotus barbatus</i> | Common Bulbul | E |
| <i>Poeoptera stuhlmanni</i> | Stuhlmann's Starling | FE |
| <i>Zosterops senegalensis</i> | Yellow White-eye | FEC |

Notes: F = forest, E = edge, c = collected, no symbol: not associated with forest.

and this comparison is set out in Table 2. Although the netting effort at North Nandi was confined to early January, whereas that at the Kakamega Forest Station site was spread over the nine months June to February, there was little seasonal variation in species composition at the latter site. The actual numbers of individuals caught will depend on several factors that may differ between the two forests, such as the density of vegetation at mist-net height, the 'net-shyness' of the birds and various other factors; the species caught are therefore listed in rank order of frequency of capture, and comparisons made between ranks rather than absolute numbers caught.

Of the four commonest species in each forest, three are shared (*Andropadus latirostris*, *Phyllastrephus placidus* and *Sheppardia aequatorialis*); the major differences are the abundance in North Nandi of *Alcippe abyssinica*, which does not occur in the Kakamega Forest Station area, and the greater abundance in Kakamega of *Nectarinia olivacea*. Thus the numerically dominant species in the two forests are much the same, the chief differences being found in the rarer species.

To make a quantitative comparison between the two avifaunas we can treat the lists of mist-netted species as independent samples of the avifauna of each forest, and calculate an index of similarity between them based on the number of species held in common by the two forests. A suitable index is Sorensen's,

given by $Q_s = \frac{2j}{a+b}$ where j is the number of species common to the two forests, and a and b are the total numbers of species found in the two forests. The index ranges from 0 for two samples with no species in common, to 1 for samples with all species in common (Southwood 1971).

In this case $Q_s = \frac{2 \times 20}{35+39} = 0.54$

One of the more interesting problems in biogeography is to assess the extent to which the distribution of one group, in this case birds, is dependent on the ecology of the habitat it occupies, in this case forest; is the distribution of the avifauna closely tied to that of forest trees, or are other factors such as competition, palaeoclimatic history and so forth, also important? One approach to this problem is to compare the similarity of the two avifaunas with that of the floras of the areas they occupy. In this case we can use lists of tree species recorded in the reconnaissance inventory of indigenous trees of Kenya (Forest Department 1973); using the species lists for Kakamega Forest and Nandi Forest, we can calculate Q_s for trees as $\frac{2 \times 39}{56+51} = 0.73$. Thus the vegetation of the two forests seems to be more similar than their avifaunas, suggesting that factors other than the floristic composition of their habitat may be important in determining forest bird distribution.

TABLE 2

Relative abundance of species mist-netted in North Nandi and Kakamega Forests

| Species | Rank order of abundance in | |
|------------------------------------|----------------------------|----------|
| | North Nandi | Kakamega |
| <i>Andropadus latirostris</i> | 1 | 1 |
| <i>Phyllastrephus pacidus</i> | 2 | 3 |
| <i>Sheppardia aequatorialis</i> | 3 | 4 |
| <i>Alcippe abyssinica</i> | 4 | x |
| <i>Prinia bairdii</i> | 5 | 12= |
| <i>Apalis pulchra</i> | 6= | 32= |
| <i>Cossypha cyanocampter</i> | 6= | 14= |
| <i>Spermophaga ruficapilla</i> | 6= | 7 |
| <i>Bathmocercus cerviniventris</i> | 9 | 8 |
| <i>Pogoniulus bilineatus</i> | 10= | 22 |
| <i>Trichastoma pyrrhoptera</i> | 10= | - |
| <i>Bleda syndactyla</i> | 10= | 19= |
| <i>Alethe poliocephala</i> | 10= | 5 |
| <i>Andropadus curvirostris</i> | 14= | 6 |
| <i>Ploceus melanogaster</i> | 14= | - |
| <i>Trichastoma albipectus</i> | 14= | 10 |
| <i>Kakamega poliothorax</i> | 14= | - |
| <i>Zosterops senegalensis</i> | 14= | - |
| <i>Nectarinia olivacea</i> | 19= | 2 |
| <i>Sylvietta leucophrys</i> | 19= | x |
| <i>Trochocercus albonotatus</i> | 19= | x |
| <i>Estrilda nonnula</i> | 22= | - |
| <i>Indicator minor</i> | 22= | - |
| <i>I. variegatus</i> | 22= | - |
| <i>Laniarius luehderi</i> | 22= | 32= |
| <i>Nectarinia preussi</i> | 22= | - |

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TABLE 2 continued:

| | North Nandi | Kakamega |
|-----------------------------------|-------------|----------|
| <i>Platysteira peltata</i> | 22= | x |
| <i>Cossypha niveicapilla</i> | 28= | 32= |
| <i>Indicator exilis</i> | 28= | - |
| <i>Camaroptera brachyura</i> | 28= | 32= |
| <i>Nectarinia verticalis</i> | 28= | 32= |
| <i>Neocossyphus poensis</i> | 28= | 32= |
| <i>Melaenornis chocolatina</i> | 28= | - |
| <i>Nigrita canicapilla</i> | 28= | 24= |
| <i>Serinus burtoni</i> | 28= | - |
| <i>Platysteira blissetti</i> | x | 9 |
| <i>Camaroptera chloronata</i> | - | 11 |
| <i>Andropadus virens</i> | x | 12= |
| <i>Trochocercus nigromitratus</i> | x | 14= |
| <i>Hylia prasina</i> | x | 16= |
| <i>Trichastoma rufipennis</i> | x | 16= |
| <i>Andropadus masukuensis</i> | - | 18 |
| <i>Phyllastrephus baumanni</i> | x | 19= |
| <i>Trichastoma fulvescens</i> | x | 19= |
| <i>Phylloscopus budongoensis</i> | - | 22= |
| <i>Platysteira concreta</i> | x | 24= |
| <i>Ploceus bicolor</i> | x | 24= |
| <i>Turtur tympanistria</i> | - | 24= |
| <i>Andropadus ansorgei</i> | x | 28= |
| <i>Platysteira castanea</i> | x | 28= |
| <i>Terpsiphone viridis</i> | x | 28= |
| <i>Dendropicos fuscescens</i> | - | 31 |
| <i>Buccanodon duchaillui</i> | x | 32= |
| <i>Campethera caroli</i> | x | 32= |
| <i>Platysteira cyanea</i> | x | 32= |

Notes: x = not recorded in that forest, - = recorded, but not netted in sample. The North Nandi sample was 208 birds of 35 species, caught in 44 400 net-foot-hours (approximately 13 500 net-metre-hours), one net-foot-hour is one foot of mist-net set for one daylight hour, operated continuously from 4 to 8 January 1978. The Kakamega sample was 483 birds of 39 species, in 44 700 net-foot-hours (approximately 13 600 net-metre-hours) on seven separate occasions over a period of nine months (June 1976 to February 1977). Neither sample includes retraps or Palaearctic migrants (Blackcap *Sylvia atricapilla*, caught only at Kakamega) but both include species normally considered as 'edge' species because they were caught in the same nets as 'forest' species and to exclude them would be difficult to justify.

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FISCAL ATTACKS UPON WHITE-FRONTED BEE-EATERS

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The Fiscal *Lanius collaris* is an omnivorous predator whose normal diet consists primarily of large insects. The hunting technique is to perch on exposed branches of bushes or low trees and visually search for prey. When an item is spotted, the shrike makes a short downward flight, pouncing on the prey on the ground. The food is then brought back to the perch, eaten directly if it is a small item, or impaled on a thorn and fed upon, if it is unusually large.

Although the diet of Fiscals is primarily insectivorous, they have been seen to take small lizards (pers. obs.) and birds (see for example, Durfey & Durfey 1977). Fiscals also occasionally prey upon White-fronted Bee-eaters *Merops bullockoides*, a species almost as large as the predator itself. (*M. bullockoides* typically weigh 33 - 35 g; the mean weight of 14 *L. collaris* in the collection of the National Museums of Kenya was 39 g.) My observations were made during the course of a long-term study of the social behaviour of the White-fronted Bee-eater in the Nakuru area of the rift valley of Kenya (see Hegner, Emlen, Demong & Miller 1979).

Fiscals and White-fronted Bee-eaters share the same habitat near Nakuru, and territorial groups of the two species frequently inhabit completely overlapping areas. Due to a partial similarity in their diets, one would expect a certain amount of competition between the two species - and this seems to be the case. Fiscals are dominant in these interactions, however, and readily supplant bee-eaters from preferred foraging perches.

My evidence that Fiscals occasionally prey upon White-fronted Bee-eaters comes from four observations.

1. In the late afternoon, White-fronted Bee-eaters congregate at colony roosting sites where they spend one to two hours socializing before going to roost. At this time birds often sunbathe, croaking their necks far to the side, and/or pressing their bodies against the sun-baked dirt of the colony cliff face. They orient their bodies towards the sun, raise their back and nape feathers, and often stretch their wings out to the side. Eyes are closed and the birds seem almost to doze in the heat.

Such sun-bathing is a socially contagious behaviour at the colonies, and often as many as 50 - 60 individuals will sun in a group, their bodies tightly packed together on the section of the cliff receiving the late afternoon sun.

On three different occasions I have observed Fiscals disrupt such sun-bathing gatherings, diving into the inattentive groups of bee-eaters at full speed. In each instance some member of the bee-eater assemblage sighted the approaching Fiscal and gave the alarm, causing the bee-eaters to scramble into the air. On two of the occasions, the Fiscal attack came very close, with the shrike striking the cliff within a few centimetres of a laggard among the explosively departing bee-eaters.

2. Upon fledging from their tunnelled nests, young White-fronted Bee-eaters remain dependent upon adult members of their nesting group for three to six weeks. Their flight capabilities are inadequate for highly successful insect capture, and only slowly do they achieve the aerial manoeuvrability and aerobatic capabilities that bring their aerial hunting success up to that of the adults. As a result of their rather clumsy flight at this time, they can fall easy prey to avian predators (raptors).

Once, while watching a very young juvenile (2 weeks post-fledging), I observed it to be repeatedly dived at by a Fiscal. Had the Fiscal merely dived once, I would have considered the incident merely a supplanting

encounter. But the Fiscal repeatedly followed and dived at the juvenile as the latter moved to four successive perches. The three adult members of the bee-eater group became highly agitated, clustering with the juvenile and uttering repeated *kek-kek* alert/alarm notes. After the fourth 'miss', the Fiscal departed and continued its foraging elsewhere.

3. As part of some experiments aimed at determining the response of White-fronted Bee-eaters to territorial intruders, Robert E. Hegner placed a mounted bee-eater specimen loaned by the National Museums, on a fencepost and retreated into a nearby hide to observe the results. Although other bee-eaters ignored the mounted specimen, after a time Hegner observed a Fiscal dive at full speed into the mount, striking it with considerable force. There was no question but that this was a predatory attack and, had the bee-eater been a living bird, that it would have almost certainly been killed.

4. Finally, on one occasion, I found a dead and partially eaten White-fronted Bee-eater impaled on a thorn of an acacia tree immediately adjacent to an actively breeding bee-eater colony.

These four observations provide strong evidence that Fiscals can be predators upon other birds roughly their own size. Normally, White-fronted Bee-eaters can easily detect and avoid attacking Fiscals. The Fiscal must rely upon surprise and the speed of its direct approach for, once in the air, it is no match for the manoeuvrability of the bee-eaters. Not surprisingly, both on the feeding territories and at the colonies, bee-eaters keep a close watch on nearby Fiscals. Any sudden flight or approach by a Fiscal triggers an immediate sounding of the *kek-kek* alert/alarm note by bee-eaters in the vicinity. But the alert is short-lived, and the bee-eaters soon return to their normal activities. This supports the contention that Fiscals only pose a threat when they can closely approach and surprise their avian prey. Thus it is likely that only the unaware or the unhealthy are usual victims. This is reinforced by the fact that the one case of an impaled bee-eater was found adjacent to a sun-bathing spot at a colony cliff face.

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(Received 20 June 1979)

SHORT COMMUNICATIONS

SPIKE-HEELED LARK *CHERSOMANES ALBOFASCIATA* AT AMBOSELI: A NEW BIRD FOR KENYA
At 10:00 hrs on 21 October 1979, P. Lewis and I located an unfamiliar lark about 1 km from the New Amboseli Lodge (2°39'S., 37°05'E.), which was subsequently identified as a Spike-heeled Lark. The bird was somewhat shy, usually allowing approach by car to 7 or 8 m before running or flying away. The following details were noted after at least 5 min of close observation with x10 and x8 binoculars:

Slightly smaller in size than Red-capped Larks *Calandrella cinerea*, which were observed in some numbers in the same area. Tail noticeably very short, bill long and thin. Head and mantle dark grey-brown, with buff-white edgings to mantle feathers. Nape paler, crown with dark heavy streaking, slight whitish supercilium. Wings broad, flight feathers uniform grey-brown lacking any rufous or chestnut colouration. Tail feathers as flight feathers in colouration but with conspicuous whitish tips. Lower rump and upper tail coverts orange-chestnut, contrasting noticeably with mantle and tail, especially in flight. Throat pale; underparts marked with rich orange-buff, breast colour more pronounced with small dark spots or streaks. Eye dark, legs pale pinkish brown.

The behaviour of the bird differed from that of the more confiding Red-capped Larks. It usually ran rapidly away from observers, attempting to find cover amongst the more extensive clumps of short grass. The long thin bill and short tail gave the bird a rather cisticola-like appearance when moving amongst cover.

This appears to be the first record of the Spike-heeled Lark for Kenya and is presumably referable to the race *beesleyi* described from the Asogati Plain in northern Tanzania some 50 km to the south (see Benson 1966, Benson & Forbes-Watson 1966, Beesley 1971).

I thank G.R. Cunningham-van Someren for providing information and literature concerning this species.

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R.D. Moore, Box 24819, Nairobi.

Received 31 October 1979

THE FIRST RECORD OF THE BASRA REED WARBLER IN THE SUDAN A Basra Reed Warbler *Acrocephalus griseldis* was netted and ringed at Juba (4°52'N., 31°30'E.) along the Nile in low reeds above water on 30 August 1979. The bird had still unmoulted primaries and its measurements were: wing 78 mm, bill to feathers 20 mm and weight 16 g. I recognized it at once by its long slender bill and its grey olivaceous colour, creamy-white below with an unstreaked throat. I know the species from Ethiopia where I have caught it at Lake Koka in the rift valley at the end of August and in early September.

The main known wintering areas for the Basra Reed Warbler are along the coast of East Africa from Kenya to Tanzania and Mozambique (Pearson, Britton & Britton 1978, Ash 1978) and in southern Malawi (Hanmer 1979). The birds seem to arrive in East Africa from late October to January (Pearson & Backhurst 1976). The Juba bird was very early and very far west. Only the records from Ethiopia are as early where they appear to stopover for primary moult before they go on in November to their final wintering areas in eastern Africa.

There are two other very far western records of this species, from Uganda in November (Pearson 1972) which might have come from the Sudan along the Nile. Pearson's birds both had fresh plumage.

The Juba bird is a further record which supports the theory that the Basra Reed Warbler arrives in Africa at the end of August, where most birds moult their primaries, before going on to winter south of the equator (see Pearson & Backhurst 1976, Ash 1978). It also supports the idea that they avoid large highland areas during migration, passing along the Ethiopian rift valley and through Somalia (J.S. Ash, pers. comm.). Some birds are evidently channelled west by the Ethiopian highlands to migrate along the Nile to Lake Victoria in Uganda and, presumably, further south.

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- G. Nikolaus, [Juba], Box 47051, Nairobi.

Received 4 October 1979

CORRIGENDA

Scopus 3: 71 Under *Prodotiscus insignis*, 'the Montane White-eye *Zosterops polioogastra*' should read 'the Yellow White-eye *Zosterops senegalensis*'. Ed.

THE EAST AFRICAN BIRD REPORT 1979

This report, which forms the fifth issue of *Scopus* volume 3, will be published in 1980. Readers are asked to note the following two points:

1. A list of species for which records are particularly required for the Report is enclosed with this issue. It will help the compilers of the Species Report sections if records are submitted as early in 1980 as possible, so that, hopefully, the Report can be published earlier than in previous years.
2. Would ornithologists undertaking ornithological studies in East Africa, please send brief details to D.A. Turner, Box 48019, Nairobi, so that the section covering bird work in East Africa is as complete as possible.

Continued from inside front cover

'References'; the name(s) of the author(s) and date(s) of publication should be given in the text in the normal way. A list of the works concerned is given below.

Observers are asked to send in records of birds for inclusion in the annual East African bird report issue. Records which appear in the *National Museums of Kenya Department of Ornithology Newsletter* will be reviewed for the annual report but, in the case of rare birds or birds showing an extension of range, full details supporting the record should be submitted, whether the record is sent to the *Newsletter* or *Scopus* - this will save correspondence later on.

All contributions should be sent to Dr D.J. Pearson, Department of Biochemistry, University of Nairobi, Box 30197, Nairobi, Kenya.

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[This issue contains the supplement 'List of species for which records are particularly requested for the East African Bird Report 1979.]

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GENERAL REVIEW

The year 1979 produced much of ornithological interest from Kenya, and some notable records from scattered localities in Tanzania. Distributional details for some local species were clarified, and our knowledge of the movements and wintering of Palaearctic migrants was consolidated.

The major climatic features of the year (as based mainly on Kenyan experience) were an unusually wet period during late January-February, during which green bush persisted in much of the country north, as well as east, of the Highlands, a moderate, normally timed 'Long Rains' period, and (in central and eastern Kenya) a dry June-October followed by moderate to heavy rains at the end of the year. Many rift valley lakes reached peak levels during the first half of 1979 after rising steadily for two years or more, but were receding rapidly by November-December, leaving muddy edge habitats attractive to ducks and waders.

Notable occurrences included the first Kenyan record of the Spike-heeled Lark *Chersomanes albofasciata*, considerable concentrations of the migrant Madagascar Squacco Heron *Ardeola idae* during August-September and the largest numbers of Black-necked Grebes *Podiceps nigricollis* reported for many years. Among records of Palaearctic species the first East African occurrence of the Little Gull *Larus minutus*, at Lake Turkana, was perhaps the most noteworthy, particularly since about 60 individuals were involved. Another gull, the Herring Gull *Larus argentatus* continues to increase, and reached unprecedented numbers in the Malindi area during 1979. Phalaropes are rarely recorded inland or inshore, but substantial parties have occasionally been reported beyond the coastal reef by fishing enthusiasts. The identification of one such party as Red-necked Phalaropus *lobatus* was particularly interesting.

Some unusual movements of birds of prey occurred during January-February, with unprecedented numbers of wintering Lesser Spotted Eagles *Aquila pomarina*. The unusually wet local conditions at this time, coupled perhaps with the failure of the rains further south in Africa, were presumed to be responsible. In Kenya, a January survey of Palaearctic ducks, part of an international mapping exercise co-ordinated by the International Wildfowl Research Bureau, was undertaken for the second year, with reasonable coverage of the western and central highlands as well as waters further east. The regular wintering status of the Teal *Anas crecca* and the Wigeon *A. penelope* was further emphasised. It is hoped that this survey work will be consolidated during 1980-1982, and that counts will be extended to migrant waders.

With the April rains less heavy, larger numbers of Palaearctic passage migrants were noted in Kenya, around Nairobi, in Tsavo and at the coast, than during 1977 or 1978. A movement dominated by Willow Warblers *Phylloscopus trochilus* became apparent at Nairobi during the first few days of April, and the last migrant passerines were seen during the first week of May. The usual

heavy southward migration was recorded through southeastern Kenya at the end of the year. Here, at Ngulia Lodge, a record number of over 13 000 Palaearctic birds was ringed between the last week of October and the end of December, including a Little Bittern *Ixobrychus minutus* of the nominate race and a Scops Owl *Otus scops* of Eurasian origin. The small selection of Ethiopian birds caught at the Lodge at night included two African Crakes *Crex egregia* and a Little Bittern of the race *payesii*. For the first time since 1976 this late autumn movement was reflected in observations as far west as Nairobi, where Sprossers *Luscinia luscinia* and Marsh Warblers *Acrocephalus palustris* were common throughout the first three weeks of November.

Some information on records required for this report was given in a supplement to *Scopus* of December 1979. This may have been responsible for the encouraging response to our request for contributions. The categories under which records have been selected for inclusion in the Species Account are those used in the 1978 report, and are given for each species. Some species for which we have asked for all records under the 'R' (requested) heading do not appear in the Species Account of this report. Nevertheless, records of these species are still required, and they will be dealt with in summarized accounts in future reports.

D.J. Pearson, Chairman, E.A.N.H.S. Ornithological Sub-Committee

SPECIES REPORT

The records are for the year 1979 and for convenience are divided into two sections, Ethiopian and Malagasy region birds and oceanics, and Palaearctic species.

Each species is followed by a code letter which, it is hoped, will make the reason for the inclusion of each record clear.

- S: SCARCE species for which all records are required and, if satisfactory, are published.
- R: species of special interest which we do not regard as scarce but for which we REQUEST all records. Records in this category may sometimes be published in summarized form.
- E: records showing an EXTENSION of range, or from areas where the species is scarce.
- N: records published for their NUMERICAL interest - either especially large numbers or accurate counts.
- D: records of migrants where the DATES given are of interest.
- M: records of MISCELLANEOUS interest.

ETHIOPIAN AND MALAGASY REGION BIRDS AND OCEANICS

PODICIPEDIDAE: Grebes

Podiceps nigricollis Black-necked Grebe R: 1 Nairobi NP, 9 Feb and 1 Dec (RDM), 40+ Lake Solai, 8 Jly (LS), c.50 Lake Bogoria, 29-30 Jly (FPJ), 1 Lake Naivasha, 23 Sep (DJP), 100+ Lake Bogoria, late Oct - early Nov (JC, JDG).

FREGATIDAE: Frigatebirds

Fregata sp. S: single frigatebirds reported from Ras Iwetine near Mombasa on 5 Mar (HAB, PLB) and from the Watamu area on 8 Nov (HAB, PLB) and 17 Dec (KAC).

ARDEIDAE: Herons, bitterns and egrets

Ixobrychus minutus payesii Little Bittern R: 1 Lake Jipe, 30 May (YM-C), 2 Smart's Swamp, Limuru, 29 Jly (BSM), immature male ringed Ngulia Safari Lodge, 19 Nov (GCB, DJP).

Ixobrychus sturmii Dwarf Bittern R: singles at Ngulia Lodge, 7 Jan, 23-24 Nov and 2 on 12 Dec (GCB, DJP), 1 between Aruba and Galana river, Tsavo East, 20-21 Jan (JM), 1 Bamburi, near Mombasa, 3 May (HAB, PLB), 1 Malindi 31 Aug (PLB, DJP), 1 30 km west of Mariakani, 20 Oct (JDG), 1 near Usavya, north end of Rukwa Valley, Tanzania, 4 Dec (SJT).

Ardeola idae Madagascar Squacco Heron R: singles Bamburi area, 11 Jun and 8 Aug (HAB, PLB), 1 Thika oxidation ponds, 30 Jun and 7 there 21 Jly (BSM), 1 beside Rufiji River, Selous Game Reserve, 6 Aug (DAT), 1 Malindi area, 31 Aug (PLB, DJP), 2 there on 22 Sep and another single on 18 Oct (HAB, PLB), 17 Mwea Rice Scheme, 1 Sep (JDG) and 25 there on 9 Sep (JDG, DJP), 1 Amboseli NP, 20 Oct (RDM).

Egretta ardesiaca Black Heron R: 17 Nzega Dam, Tabora Region, Tanzania during Feb (RKW), c. 10 Chale Is., 1 Apr (PLB), 4 Mida Creek, 16 Apr (HAB, PLB), 6 near Garsen, 6 Aug (FPJ), a few Lake Jipe, 22 Jun although resident at this locality (DAT), 1 Allia Bay, Lake Turkana, 21 Dec (JC).

Egretta gularis Reef Heron S: 1 dark phase Mida Creek, 14 Jan and 16 Apr (PLB, HAB), 1 white phase Lake Baringo throughout the year (TS).

CICONIIDAE: Storks

Anastomus lamelligerus Open-billed Stork: notable records away from the Lake Victoria basin are: E: flocks of 70 and 20 over Mida Creek, 5 May (HAB, PLB, DJP), 100+ Lake Bogoria, 30 Jly (FPJ), flocks of up to 50 north of Dar es Salaam, Nov-Dec (SJT), 1 Nairobi NP, Nov-Dec (RDM, DAT, JDG).
N: 6000-7000 Lake Katavi, Katavi Plain GR, western Tanzania, 2-3 Dec (SJT).

Ciconia abdimii Abdim's Stork D: latest date: 14 Mar, Malakisi (NBM).

First arrivals: 13 Nov, Kisumu (DAT), 16 Nov, Mara GR (DAT) and 23 Nov, Lake Baringo (TS), while in southern Tanzania flocks of 200+ near Mbeya by late Nov (RS) and mid Dec (SJT).

Ciconia episcopus Woolly-necked Stork E: notable records away from Tsavo and the coast: 2 Eldoret/Mau Summit, 9 Jan (NBM), 2 Serena Lodge, Mara GR, 12 Apr (ADL), 1 Nairobi NP, 12 Aug (RDM), 2-3 Katavi Plain GR, Tanzania, 2 Dec (SJT).

PHENICOPTERIDAE: Flamingos

Phoenicopus ruber Greater Flamingo E: 2 Dar es Salaam, mid Nov (KMH).

ANATIDAE: Ducks and geese

Dendrocygna bicolor Fulvous Whistling Duck R: c. 25 Mida Creek, on open water, 4 Feb and c. 100 at Sabaki River mouth (=Sabaki), 10 Nov (PLB), a few Kisumu waterfront, 15-16 Jun (DAT), a few Lake Jipe, 22 Jun (DAT), c. 100 Lake Baringo, 28 Jly (FPJ) and smaller numbers there 7-8 Nov (DAT), a few Lake Naivasha, 14 Nov and 2 Dec (DAT).

Nettapus auritus African Pygmy Goose R: present in small numbers throughout the year at Lake Jipe (DAT), Bamburi, near Mombasa (HAB, PLB) and at Kazima Dam, Tabora, Tanzania (RKW). 2 Malindi, 31 Aug (PLB, DJP), 2 Amboseli NP, 16 Dec (WK).

Oxyura maccoa Maccoa Duck R: present in small numbers throughout the year in the Limuru area (BSM, DAT).

ACCIPITRIDAE: Birds of Prey

Circus fasciolatus Southern Banded Snake Eagle E: record away from Sokoke Forest: 1 calling at Mtwapa Creek, 29 Mar (HAB, PLB).

Buteo rufipennis Grasshopper Buzzard R: 1 north of Garsen, 7 Jan (HAB, PLB), 13 near Buchuma, Tsavo East, 26 Jan (HAB, PLB), 1 20 km south of Voi, 15 Feb (BSM), 1 Meru NP, 5 Nov (DAT), 2 Tsavo Gate, 24 Nov (DJP), 1 Ngulia Lodge, 27 Nov (DJP), 2 between Iringa and Dodoma, Tanzania (RS).

Buteo tachardus Mountain Buzzard E: noteworthy Tanzania records: recorded over forests on tea estates at Mufindi (Iringa highlands), 17 Nov and 23-31 Dec (SJT), a pair over forest at Sumbawanga, southwest Tanzania, 27 Nov (SJT).

Aviceda cuculoides Cuckoo Hawk R: numerous records from coastal areas 14 May - 22 Sep (HAB, PLB, DJP), resident in small numbers in forest areas around Nairobi, notably Karen, Langata and Karura forests (DKR, DAT, DJP).

Chelictinia riocourii Swallow-tailed Kite R: small numbers present throughout the year in the rift valley between Longonot and Suswa (DAT), 1 Lake Baringo, 26 Aug and four sightings of single birds there during Oct (TS).

Macheiramphus alcinus Bat Hawk R: 1 seen regularly Lake Baringo, early Feb, and 1 on 3 Nov (TS), 1 Likoni, Mombasa, 13 Mar (HAB, PLB), 1 Mazumbai, West Usambaras, 13 Jly (SNS), a pair at Utete, 27-28 Jly (KMH), 2 Shimba Hills, 22 Oct (DJP, JDG).

FALCONIDAE: Falcons

Falco alopex Fox Kestrel R: 1 along Magadi Road near base of escarpment, 2 Dec (DAT, JDG).

Falco fasciinucha Taita Falcon S: pair Lake Chala, near Taveta, 2 Jun (JDG), 1 mobbing an African Marsh Owl *Asio capensis* near Mwatate, Taita, 10 Jun (PLB, RAMM).

PHASIANIDAE: Quails, francolins

Ptilopachus petrosus Stone Partridge R: fairly common near Kitich, Matthews Range, 12-16 Apr (DAT).

TURNICIDAE: Button Quails

Turnix sylvatica Button Quail D, M: 1 Emali, 26 Mar (DJP), 1 Njoro, 8 Sep (BSM), 1 on road after rain at Embakasi, 2 Dec (DAT, JDG), singles ringed at Ngulia Lodge, 17 and 18 Nov (GCB, GN, PLB et al.) and sightings there on 27 and 29 Nov and 12 Dec (DJP).

RALLIDAE: Rails and crakes

Crex egregia African Crake M: singles caught and ringed at night at Ngulia Lodge, 17 and 18 Nov (GCB, GN, PLB et al.).

Gallinula angulata Lesser Moorhen E: 1 Smart's Swamp, Limuru, 11 Mar (BSM), 7 Bamburi, Mombasa, 12 May and 1 there on 28 Oct (HAB, PLB).

Porphyrio alleni Allen's Gallinule R: 1 Hillcrest Dam, Langata, 30 Jan (RDM), present in numbers as usual, for much of the year at Bamburi (HAB, PLB), present throughout the year at Kazima Dam, Tabora, Tanzania (RKW).

Porzana pusilla Lesser Spotted Crake R: a pair in swamp near Dodoma, Tanzania, 21 May, and with at least 1 juvenile on 25 May (DKR).

Sarothrura rufa Red-chested Pygmy Crake R: recorded from Buffalo Springs in Aug (RDM, PBT) and Sao Hill, Iringa highlands in Dec (SNS).

JACANIDAE: Jacanas

Microparra capensis Lesser Jacana R: Kenya highlands: 2 between Nakuru and Nyahururu, 12 Jan and 1 Apr (DJP), several at Ziwa, near Moiben, 27 Jan and several at Kipkabus, 28 Jan (DJP), 1 Lake Naivasha, 12-13 Jly (FPJ).

ROSTRATULIDAE: Painted Snipes

Rostratula benghalensis Painted Snipe R: 4 Lake Nakuru, 13 Jun (DAT), 2 Lake Bogoria, 14 Jly (RDM), 4 Mwea Rice Scheme, 9 Sep (DJP, JDG), 2 Athi River, early Nov (DJP, RDM), 1 Mara GR, 15 Nov (DAT).

CHARADRIIDAE: Plovers

Charadrius forbesii Forbes' Plover S, E: full details of 1 seen in a stream bed between Iringa and Dodoma, Tanzania, 4 Dec (RS) - a considerable eastwards extension, previously known from a few records from the west of the country (and two records from Uganda).

Vanellus lugubris Senegal Plover N: 100+ at roadside pool north of Garsen, 7 Jan (HAB, PLB).

Vanellus melanopterus Black-winged Plover E: 3 Katavi Plain GR, southwest Tanzania, 2 Dec, were presumably wanders from a highland area (SJT).

Vanellus senegallus Wattled Plover E: Tanzania records: 4 at two sites on the Ufipa Plateau, 11 Aug (SJT), a few pairs in the Sumbawanga area, Oct-Nov (SJT, RS).

DROMADIDAE: Crab Plover

Dromas ardeola Crab Plover N: counts on the Kenya coast at Mida Creek gave 250+ during Jan and Feb, 99 on 5 May, 70 on 11 Aug (FPJ) and 140 on 11 Nov (HAB, PLB); the only other coastal records were of 2 at Ras Iwetine on 6 Nov (HAB, PLB). On the Tanzanian coast small numbers were at Kunduchi, Aug-Dec, with a maximum of 70 on 17 Dec (SJT).

GLAREOLIDAE: Coursers and pratincoles

Glareola ocularis Madagascar Pratincole N: Sabaki counts: c. 100 on 15 Apr (PLB) and c. 500 in late June (DAT, FPJ) but with numbers dropping to 4 on 26 Aug and 5 on 22 Sep (PLB). Other coastal records were of 6 at Ngomeni on 19 Apr, 15 moving south at Kilifi ferry on 3 Sep and 60-100 moving south at Shimo-la-Tewa, 15-16 Sep (PLB).

LARIDAE: Gulls and terns

Larus hemprichii Sooty Gull N: maximum count on the Kenya coast was c. 600 at Ras Iwetine on 10 Feb (HAB, PLB).

Anous stolidus Common Noddy R: 1 seen from land, flying outside the reef, off Watamu, 18 Apr (HAB, PLB), a few 'probables' off Watamu, 18-21 Apr (DJP), 3 off Kilifi with other terns on 26 Dec (DAT).

Anous tenuirostris Lesser Noddy S: wings and head of a dead bird at Kisite Is., off Shimoni, 1 Jan (HAB, PLB).

Sterna albifrons Little Tern N: the largest coastal counts were: Malindi Fish Market, 300 on 24 Feb and 2000 on 10 Mar (PLB, DJP); Sabaki, 2000 on 10 Nov (PLB); Chale Is., 40 on 1 Apr (PLB). No counts available from Lake Turkana.

Sterna anaethetus Bridled Tern R: 5 off Tiwi Creek, south of Mombasa, 21 Aug (RDM), 3 off Kisite Is., 21 Oct (PLB, DJP, JDG), 1 dead at Kisite Is., 28 Oct (ARLS), 1 off Kilifi, 26 Dec (DAT).

Sterna bengalensis Lesser Crested Tern N: coastal counts were: Ras Iwetine, 120 on 5 Feb and 60 on 20 Feb (HAB, PLB); Malindi Fish Market, 70 on 24 Feb (HAB, PLB); Sabaki, maximum 400 on 24 Feb (PLB).

Sterna bergii Crested Tern N: coastal counts were: Malindi Fish Market, 4 on 24 Feb and 40 on 10 Mar (PLB, DJP); Sabaki, 6 on 18 Oct (HAB, PLB). A pale immature seen at sea off Kisite Is. on 21 Oct was probably referable to the southern race *thalassina*, hitherto unrecorded from Kenya waters (PLB, DJP, JDG).

Sterna dougallii Roseate Tern N, M: (from Kenya coast): 30 at Chale Is., 1 Apr (PLB), 300 at Kikambala, 11 Aug (HAB, PLB) and, at times, 500-1000 at Kilifi, 26 Aug - 2 Sep (DJP). Counts at Malindi and Sabaki were very low, though hundreds (sometimes thousands) of terns often seen beyond the reef are probably mainly of this species (PLB). Dead birds (including downy young) collected from Kisite Is. on 28 Oct showed conclusively that breeding took place again on the island, probably in August (PLB).

Sterna fuscata Sooty Tern R: an immature off Kilifi with other terns, 26 Dec (DAT).

Sterna repressa White-cheeked Tern R: 2 Malindi Fish Market, 10 Mar (PLB, DJP), 25 Chale Is., 1 Apr (PLB), 1 Kilifi, 3 Sep (DJP). Small numbers seen occasionally throughout the year at Sabaki and Ras Iwetine (PLB).

RHYNCHOPIDAE: Skimmers

Rhynchops flavirostris African Skimmer R: small flocks at Lake Baringo throughout January, otherwise seen daily from late October to the end of the year (TS), 30 north of Loiyengalani, 22 Apr (RDM), 5 Lake Naivasha, 29 May (BSM), 10 Sabaki, 16 Feb (RDM), 5 there on 15 Apr (HAB, PLB), 34 there on 17 Apr (PLB, DJP) and 4 there on 27 Jun (FPJ); 7 ringed at Mida Creek, 1 Sep (PLB, DJP); 1 Nairobi NP, 22 Sep (RDM); 2 Lake Magadi, 2 Dec (DAT, JDG).

PSITTACIDAE: Parrots, lovebirds

Poicephalus robustus Brown-necked Parrot R: Tanzania records: 3 near Mwanhala, Nzege District in Feb and 7 at Nanga, Igunga District, in May (RKW); a few

in the northern sector of the Selous GR, 6-10 Aug (DAT) and 2 in Mikumi NP, 27 Dec (KMH).

CUCULIDAE: Cuckoos and coucals

Cercococcyx montanus Barred Long-tailed Cuckoo R: calling daily in the Usambara forests, both East and West, between Oct - Mar and at Mufindi, Iringa highlands between Aug - Sep (SNS). Also recorded in the West Kilomero Forest Reserve, Uzungwe Mts, in Dec (RS).

Clamator glandarius Great Spotted Cuckoo R: the possible presence of Palaearctic birds Oct - Mar makes it difficult to determine and recognize Ethiopian region breeders, though birds seen in Meru NP in June and in the Selous GR in Aug, as well as those at Baringo between May and Aug are presumed to have bred in Africa.

Clamator jacobinus Black and White Cuckoo R: common at Baringo Jan - end of May with stragglers remaining through to Aug (TS); common in eastern Kenya (Tsavo and Meru NPs) Jan - Feb and again Nov - Dec (DJP, DAT, GCB). Recorded in Tabora District during May and Sep (RKW).

Clamator levaillantii Levaillant's Cuckoo R: small melanistic birds recorded from coastal areas of Kenya in Jan, Mar and June are assigned to this species (PLB, DJP, DAT). Reported as very common in southwest Tanzania from Katavi Plain GR to Lake Rukwa, Oct - Dec (SJT).

Cuculus gularis African Cuckoo R: 1 bamburi, 10 May (HAB, PLB), Lake Baringo, June (TS), and an immature ringed at Ngulia, 26 Nov (GCB, DJP, DAT).

TYTONIDAE: Barn Owls

Tyto capensis Cape Grass Owl R: 1 near Naivasha, 15 Jly (RDM).

STRIGIDAE: Owls

Bubo poensis vosseleri Nduk Eagle Owl S: 1 ringed at Ambangulu, West Usambaras, 12 Oct (SNS).

Otus leucotis White-faced Scops Owl R: a pair at Lake Baringo Lodge between Jan and early Jly (TS).

CAPRIMULGIDAE: Nightjars

Caprimulgus clarus Slender-tailed Nightjar R: present throughout the year at Lake Baringo (TS); 6 ringed at Ngulia, 23 Oct - 27 Dec (GCB, DJP).

Caprimulgus donaldsoni Donaldson-Smith's Nightjar R: 42 ringed at Ngulia from 26 Oct - 26 Dec (GCB, DJP).

Caprimulgus fossii Gabon Nightjar R: heard at Timau, 11 Mar (DJP), common in Tabora Region, Aug - Sep (RKW), 1 ringed at Ngulia, 15 Nov (GCB, GN).

Caprimulgus fraenatus Dusky Nightjar R: not uncommon on the lower slopes of Mt Meru, Arusha District (JB); 13 ringed at Ngulia, 26 Nov - 27 Dec (GCB, DJP).

Caprimulgus inornatus Plain Nightjar R: 26 ringed at Ngulia between 14 Nov and 13 Dec (GCB, DJP, GN).

Caprimulgus nubicus Nubian Nightjar R: 5 ringed at Ngulia between 15 Nov and 27 Dec (GCB, DJP, GN).

APODIDAE: Swifts and spinetails

Apus berliozi Forbes-Watson's Swift S: 10 over the Soko Forest, 17 Feb (RDM, ADL) and a flock of 30 there on 30 Dec (RDM).

Apus melba Alpine Swift E: 3 Mt Marsabit, 8 Jly (FPJ).

COLIIDAE: Mousebirds

Urocolius indicus Red-faced Mousebird E: seen in Iringa, late Nov complements previous sight records from Ruaha NP (RS; see Britton 1980).

ALCEDINIDAE: Kingfishers

Ceryle rudis Pied Kingfisher N: about 100 roosting on fallen tree at Baomo Lodge, Tana River, 17 Feb (PLB).

Halcyon leucocephala Chestnut-bellied Kingfisher D: 2 adults ringed at Ngulia, 26 Nov (GCB, DJP, GN, DAT).

Halcyon senegalensis Woodland Kingfisher E: singles at Lake Baringo, 12 Jun and in early Aug (TS).

MEROPIIDAE: Bee-eaters

Merops nubicus Carmine Bee-eater D, N, E: seen in the Malindi area on the unusual date of 25 Jun (DAT); large numbers roosting Kilifi Creek from 17 Sep onwards, after an absence of at least two years (HAB, PLB); 1 Dar es Salaam area, 12 Nov (SJT); 1 Samburu GR, 29 Dec (DJP).

CORACIIDAE: Rollers

Eurystomus glaucurus Broad-billed Roller E: a single bird at Shimo-la-Tewa on 28 Apr (the first record for the Mombasa area) may perhaps have been a migrant from Madagascar (HAB, PLB).

BUCEROTIDAE: Hornbills

Bucorvus abyssinicus Abyssinian Ground Hornbill E: a pair resident in the Baringo area during Jun and Sep (TS).

CAPITONIDAE: Barbets

Buccanodon olivaceum Green Barbet M: 1 at Shume, West Usambaras at 1800 m on 8 Aug was at the presumed altitudinal limit of the species (SNS).

Buccanodon whytii Whyte's Barbet E: one at Sao Hill, 80 km southwest of Iringa, in late Nov, was presumably of the race *terminatum*, otherwise only known from the type locality '50 km south of Iringa' (see Britton 1980) (RS).

PICIDAE: Woodpeckers

Campethera nubica Nubian Woodpecker E: recorded from dry acacia scrub on the Buhoro Flats, northeast of Mbeya, southern Tanzania, 29 Nov (RS). This would appear to be a southwesterly extension of known range.

PITTIDAE: Pittas

Pitta angolensis African Pitta R: 1 attracted to lights at Bumbuli Hospital, West Usambaras in May (M. & S. Thompson, pers. comm. to SNS); 1 Jagini Forest, south Kenya coast, 23 Jun (DAT).

ALAUDIDAE: Larks

Chersomanes albofasciata Spike-heeled Lark S: 1 seen in Amboseli NP, 21 Oct, was the first record from Kenya (RDM, ADL, see *Scopus* 3: 103). A pair seen on the Asogati Plain (type locality of the race *beesleyi*), north of Arusha, 28 Oct (JSSB).

Eremopterix signata Chestnut-headed Sparrow Lark E: 20+, Tsavo River Gate, Tsavo West, 21 Jun (DAT).

HIRUNDINIDAE: Swallows and martins

Hirundo atrocaerulea Blue Swallow R: common and breeding in the Mufindi area, Iringa highlands, Oct - Dec (SJT).

Psalidoprocne pristoptera Black Rough-wing E: 2 Shimba Hills, 29 Apr (HAB, PLB).

ORIOLIDAE: Orioles

Oriolus auratus African Golden Oriole D: extreme dates from the Kenya coast were 10 Apr - 18 Sep (HAB, PLB).

Oriolus chlorocephalus Green-headed Oriole E: the first records for the West Usambaras were provided by sightings at Ambangulu during Aug and Oct (SNS).

CORVIDAE: Crows

Corvus splendens Indian House Crow E: one the Kenya coast, reported from 8 km north of Kilifi Creek, 22 Sep, which is the northernmost record to date apart from localized introductions at Watamu and Malindi (where small numbers continue to survive) (HAB, PLB). KMH reports that it is increasing in the Dar es Salaam area.

SALPORNITHIDAE: Spotted Creeper

Salpornis spilonota Spotted Creeper R: 1 observed in *Brachystegia* woodland near shore of Lake Tanganyika between Kipili and Numanyere, 9 Dec (SJT).

CAMPEPHAGIDAE: Cuckoo Shrikes

Campephaga flava Black Cuckoo Shrike D: extreme dates on the Kenya coast were 15 Apr - 20 Sep and included the first-ever male seen with yellow shoulders at the coast (HAB, PLB).

PYCNONOTIDAE: Bulbuls

Andropadus masukuensis Shelley's Greenbul E: a pair seen in a patch of montane forest above Kericho, 17 Jun, appears to represent an eastward extension (DAT).

TURDIDAE: Thrushes, robins etc.

Cercomela familiaris Red-tailed Chat E: a pair Kongalal Escarpment, 10 Nov (DAT).

Cercomela scotocerca Brown-tailed Rock Chat M: small numbers throughout the year at Baringo (TS).

Cossypha natalensis Red-capped Robin Chat D: extreme dates from the Kenya coast were 12 May - 18 Nov (HAB, PLB).

Modulatrix orostruthus Dappled Mountain Robin S: a total of four netted at Amani, East Usambaras, in Nov; two had been first ringed in 1977, one in 1978 and the fourth had not been ringed previously (SNS).

SYLVIIDAE: Warblers

Chloropeta gracilirostris Papyrus Yellow Warbler E: 2 Kendu Bay, South Nyanza District, appears to be the second recorded Kenya locality (DJP; see Britton 1980).

Cisticola carruthersi Carruthers' Cisticola E: common at Kendu Bay, South Nyanza District, 11 Feb (DJP); the first South Nyanza record (see Britton 1980).

Helicopsis erythroptera Red-winged Warbler M: 1 Mowetwe (between Tanga and Dar es Salaam), 17 Jly (JSSB).

Macrosphenus kretschmeri Kretschmer's Longbill N: fairly common at forest edge at Ambangulu, West Usambaras, Oct (SNS).

MUSCICAPIDAE: Flycatchers

Batis orientalis Grey-headed Batis R: 2 Merti Road, near Archer's Post, 14 Apr (RDM), 2-3 Meru NP, 7-8 Jun (DAT), 1 Samburu GR, 29 Jly (JDG).

MOTACILLIDAE: Wagtails and pipits

Tmetothylacus tenellus Golden Pipit M: a few in the northern part of the Selous GR (8°S), 6-8 Aug (DAT).

MALACONOTIDAE: Bush Shrikes

Laniarius ruficeps Red-naped Bush Shrike R: small numbers in the area to the east of Nguni on the Thika - Garissa road, 24 Mar (DJP; see *Scopus* 2: 115).

LANIIDAE: Shrikes

Lanius mackinnoni Mackinnon's Shrike E: 1 at Kericho on 13 Feb was at the easternmost extremity of the species' range (DJP).

Lanius somalicus Somali Fiscal M: single records from Lake Baringo, 28 Jan and 14 Feb (TS).

STURNIDAE: Starlings

Cinnyricinclus leucogaster Violet-backed Starling D: present in hundreds at the Kenya coast, 9 Mar - 12 Aug, with occasional birds in Feb and Sept (HAB, PLB); hundreds near Mwatate, south of Taita Hills, 9 Jun (PLB, RAMM).

Cinnyricinclus sharpii Sharpe's Starling E: 1 in a patch of montane forest in the Matthews Range, 14 Apr (DAT) is a new locality record (see Britton 1980).

Speculipastor bicolor Magpie Starling D, E: present throughout the year in the Baringo area (TS); wandering parties of up to 25 in the Maungu area, near Voi, 20-22 Oct (DJP).

Spreo shelleyi Shelley's Starling R: 5+ between the El Barta Plains and South Horr, 18 Apr (RDM).

NECTARINIIDAE: Sunbirds

Anthreptes neglectus Uluguru Violet-backed Sunbird E: fairly common at Ambangulu, West Usambaras, in August (SNS): first record for these mountains.

Anthreptes rubritorques Banded Green Sunbird E: fairly common at Ambangulu, West Usambaras, Aug and Oct (SNS): previously only known from Mazumbai in these mountains (Britton 1980).

Nectarinia habessinica Shining Sunbird R: 1 north of Archer's Post, 18 Mar (DJP), 1 north of Loiyengalani, 21 Apr (RDM), 1 at base of Kongalai Escarpment, 12 Dec (RDM).

Nectarinia oustaleti Angola White-bellied Sunbird S, E: recorded near Mpui, Ufipa Plateau, southwestern Tanzania, 28 Nov (RS). This is the second record for East Africa although the species is known from Mbala, Zambia, 110 km to the southwest (Benson, Brooke, Dowsett & Irwin 1971) and its occurrence in southwestern Tanzania was predicted by Britton (1980).

Nectarinia reichenowi Golden-winged Sunbird E, D: a wanderer at Olorgesailie, 6 Jun, was unusually low for this species (DAT).

PLOCEIDAE: Weavers etc.

Anomalospiza imberbis Parasitic Weaver R: 25+ Nairobi NP, 9 Dec (JDG).

Euplectes afer Yellow-crowned Bishop R: abundant at Mwea rice scheme during Sep (DJP); common in the Arusha area of northern Tanzania, Jun and Nov (JSSB); common in all wet areas in the Dodoma area, Mar - May (DKR).

Ploceus golandi Clarke's Weaver D: a pair, possibly nesting nearby, Sokoke Forest, 18 Apr (PLB, DJP); other records from Sokoke during Aug (PLB, DJP) and on 20 Nov (DAT).

Ploceus olivaceiceps nicolli Usambara Weaver R: occasional records from Mazumbai, West Usambaras, indicate no more than 4-5 pairs in the area (SNS).

Passer castanopterus Somali Sparrow R: 5+ between Lodwar and Ferguson's Gulf, 6 Sep (RDM).

Passer domesticus House Sparrow E: small numbers now established in Mombasa old town, docks and causeway areas (several observers).

ESTRIDIDAE: Waxbills etc.

Pyrenestes minor Lesser Seed-cracker E: 2 seen in sedges at the edge of a lake, Mufindi District, Iringa highlands, 28 Dec (SJT).

FRINGILLIDAE: Buntings, canaries and seed-eaters

Serinus reichardi Stripe-breasted Seed-eater R: 1 netted at Sao Hill, Mufindi District, 16 Nov (SJT).

PALAEARCTIC SPECIES

Ixobrychus minutus Little Bittern R: a male Bamburi, 13 Jan (HAB, PLB); 1 Lake Baringo, 13 Nov (TS); singles caught at night at Ngulia, 24 Nov and 20 Dec (GCB, DJP et al.).

Ciconia ciconia White Stork D, N: JULY RECORDS: 1 on 11th, Marsabit; 2 on 12th Lake Naivasha; 25 on 15th, Mara GR and 2 on 24th, Kitale (FPJ et al.). Large flock of 1600, Tunduma, 11 Dec (SJT).

Ciconia nigra Black Stork R: 6 Nairobi, 14 Jan (RDM); 1 Kahawa, 15 Mar (WKR); 1 Mbeya, southern Tanzania, 15 Mar (DKR). 1-2 Nairobi NP, 12 Oct - 9 Dec (various observers).

The Tanzanian record is the first for that country for several years.

Anas crecca Teal S: 6 Lake Ol Bolossat, 12 Jan, 20 Lake Nakuru, 13 Jan (BSM), 3 Ewaso Nyiro swamp, 20 Jan, 3 Ziwa Dam, near Moi's Bridge, 27 Jan (DJP), 3 Ararai swamp, near Mogotio, 28 Jan (DJP), 7 Thika oxidation ponds, 3 Mar (TK, BSM) and 2 there 31 Mar (BSM). 1 Lake Nakuru, 25 Oct (BSM), 1 Thika ops, 3 Nov and 2, 20 Nov (BSM), 1 Nairobi NP (JDG) and 7+ Lake Ol Bolossat, 27 Dec (PLB, DJP).

The spread of records from October to late March indicates a winter resident rather than an extra-limital status.

Anas penelope Wigeon S: 1 Lake Naivasha, 1 Jan, 60 on 12 Jan, 3 on 25 Jan and 60 on 11 Feb (BSM); 14 Nyakiami, near Nyaharuru Falls, 12 Jan, 4 Ewaso Nyiro swamp, 20 Jan, singles near Eldoret at Ziwa Dam and Lewa Downs Dam, 27 Jan, and 12 Lessos Dam, 28 Jan (DJP).

Anas querquedula Garganey D: 2 Mwea rice scheme, 9 Sep (JDG, DJP).

Aythya fuligula Tufted Duck S: 2 Lake Ol Bolossat, 12 Jan (DJP).

2 Lake Naivasha, 2 Dec (JDG, DAT) and 2 Thika ops, 29 Dec (BSM).

Aquila clanga Greater Spotted Eagle S: an adult watched at very close range at the Lookout Point, Nairobi NP, 11 Dec (BSM). Full details received. The bird was observed alongside a typical Lesser Spotted Eagle *A. pomarina*.

Aquila heliaca Imperial Eagle S: an adult between Baringo and Bogoria, 17 Feb (TS). Full details received.

Aquila nipalensis Steppe Eagle N: c. 65 counted at Mtito Andei, 16 Feb (ADL, RDM) and 30+ at Rongai, 28 Jan (DJP).

Aquila pomarina Lesser Spotted Eagle R: 1 Nairobi NP, 7 Jan (BSM), 1 Nyaharuru Falls, 12 Jan (DJP), 1 Gilgil, 14 Jan (BSM), 16 Elementeita, 13 Jan, about 20 there, 14 Jan and 1 there on 1 Mar (DJP, BSM, TK), 1 Rongai, 27 Jan and at least 5 there on 28 Jan (DJP), 1 Ziwa Dam, near Moi's Bridge, 28 Jan (DJP), 10 Mtito Andei, 1 Mar (RDM), 1 Njoro/Elburgon, 1 Mar (TK, BSM), 2 Lake Nakuru, 1 Apr (JDG, DJP, SW). Up to at least 4 Langata/Nairobi NP, 23 Oct - 1 Dec (FN, BSM, DJP, RDM), 3+ Lake Nakuru, 4 Dec (PPJ, DEGB) and 1 there 16-17 Dec (RDM, LS), 2 Longonot

24 Nov (BSM), 2 Lake Ol Bolossat, 11 Dec and 3 there on 29 Dec (DJP), 1 Naro Moro, 28 Dec (HAB, PLB).

2 Lake Baringo, 4-5 Feb (TS)

The number of records of this species, and particularly the rift valley wintering records, are without precedent (see also Scopus 3: 48-53).

Hieraaetus pennatus Booted Eagle R: 1 pale, Nairobi, 18 Feb (JDG, DJP, SW), 2 dark, Kilifi, 12 Apr (HAB, PLB).

1 dark, Dodoma, 27 Oct and 1 pale, 5 Nov (DKR); 1 pale, Ngulia 23-24 Nov (DJP, DAT et al.).

Pernis apivorus Honey Buzzard R: 1 Mrima Hill, 1 Jan (PLB), singles Sokoke Forest, 18 Feb (RDM) and 15 Apr (HAB, PLB, DJP), 1 Kianyaga, 18 Feb (JDG, DJP, SW), 1 Langata, 13 Mar and 1 Karen, 31 Mar (GRCVS).
1 Limuru, 6 Oct (DJP), 1 Kiboko, 27 Oct and 1 Langata, 2 Nov (RDM), 1 Ufipa Plateau in *Brachystegia* woodland, 20 Nov (SJT).

Falco amurensis Eastern Red-footed Falcon S: an adult male in Jan, Tunduma (PBT).

6 Ngulia, at dawn on 24 Nov (GCB, JDG, DJP, DAT), 40+ Makambako, southern Tanzania, 29 Nov (RS), 2 Nairobi NP, 26 Dec (BSM).

Falco concolor Sooty Falcon S: 1 Loiyengalani, 21 Apr (RDM).

1 Lake Baringo, 30 Oct (TS).

Falco eleonorae Eleonora's Falcon S: 1 Shimba Hills, 29 Apr (HAB, PLB).

Falco naumanni Lesser Kestrel N: 50 north of Eldoret, 27-28 Jan (DJP), 220+ Nairobi NP, 20 Feb and 70 Loiyengalani, 21 Apr (RDM).

Falco peregrinus Peregrine Falcon R: single birds showing the plumage characteristics of the race *calidus* were recorded as follows: Vipingo, 24 Feb, Ngomeni, 19 Apr and Shanzu, 24 Apr (HAB, PLB).

Crex crex Corncrake R: 1 seen on road, Tsavo East, 27 Jan (HAB, PLB).

1 caught at night at Ngulia Lodge, 17 Nov (GCB, PLB et al.).

Porzana porzana Spotted Crane S: 1 near Aruba, Tsavo East, 20 Jan (JDG). Full details received.

Haematopus ostralegus Oystercatcher R: 1 Mida Creek, 14 Jan (HAB, PLB),

1 Ferguson's Gulf, Lake Turkana, 6 Mar (ER); 1 Malindi, 31 Dec (NH).

The March record is only the third from Lake Turkana.

Charadrius dubius Little Ringed Plover R: 4 Lake Baringo, 17 Feb (TS), 8 Ruiru Dam, 7 Mar and 5 there on 14 Mar (DEP, WKR), 1 Mida Creek, 11 Mar (DJP, PLB).

Up to 5 Kariobangi Sewage Works, 13 Oct to end of the year (DJP, DEGB),

1 Athi River, 15 and 23 Oct (DJP).

Pluvialis squatarola Grey Plover E: INLAND RECORD: 1 Dodoma, 10 Nov (DKR).

Numenius arquata Curlew E: NEW COASTAL LOCALITY: 20 Kiunga Is., 1 Jan (IJPL).

Tringa erythropus Spotted Redshank R: 1 Ngorongoro Crater, 5 Jan (PBT),

1 Ewaso Nyiro swamp, 20 Jan (DJP), 1 Lessos and 3 north of Mogotio, 28 Jan (DJP), near Garsen, 1 on 16 Feb and 2 on 18 Feb (PLB).

1 Nairobi NP, 4 Nov (RDM), 1 Aberdare NP, 14 Dec (ADL), up to 15 Dandora SW, 9-31 Dec (BSM), 2 Lake Baringo, 30-31 Dec (TS).

Tringa totanus Redshank R: present as usual at Mida Creek with maximum numbers counted: 21 on 4 Feb and 19 on 4 Mar (HAB, PLB), and 3 overwintering on 3 Jly (DJP).

Xenus cinereus Terek Sandpiper E: INLAND RECORDS: singles at Lake Magadi,

23-24 Aug and 29 Sep (DJP, DEGB), Ferguson's Gulf, 5 Sep (RDM), Lake Nakuru, 9 Sep (LS) and Lake Naivasha, 31 Oct (BSM), 3 Nov (RDM) and 18 Nov (LS).

Gallinago media Great Snipe R: 1 Lake Baringo, 29 Sep (TS) and 1 Athi River, 4 Nov (DJP).

Calidris alba Sanderling E. INLAND RECORD: several at Bahi swamp, Dodoma, 10 Nov (DKR).

Calidris temminckii Temminck's Stint R: 5 Lake Ol Bolossat, 12 Jan and 1 Lake Nakuru, 29 Jan (DJP), 1 Kendu Bay, 11 Feb (DJP), 2 Lake Baringo, 17 Feb (TS). 1 Lake Baringo, 2-3 Oct, 1 on 9 Dec and 1 on 31 Dec (TS), 1 Athi River, 4 Nov (DJP), 1 Lake Ol Bolossat, 11 Dec (RDM) and 3+ there on 27 Dec (DJP, PLB), 1 Usengi, 15 Dec (RDM).

Limicola falcinellus Broad-billed Sandpiper R: Sabaki: singles on 16 Feb (RDM) and 24 Feb (HAB, PLB). Recorded again from 26 Aug, maximum 6 (HAB, PLB).

Limosa lapponica Bar-tailed Godwit R: recorded up to Feb and from Oct in Mida Creek, maximum 10 on 12 Dec (HAB, PLB, RDM, LS). 1 Kunduchi, 1-5 Sep, 1 on 6 Nov and 1 on 8 Nov (SJT).

Limosa limosa Black-tailed Godwit R: on the east shore of Lake Turkana there was 1 at Loiyengalani, 21 Apr and 7 in El Molo Bay, 22 Apr (RDM). 7 Lake Naivasha, 23 Aug; 1 Lake Nakuru, 29 Jan and 2 there on 28 Oct (all DJP).

Arenaria interpres Turnstone E: INLAND RECORDS: 1 Lake Magadi, 19 May (DJP). 2 Ferguson's Gulf, 5 Sep (RDM), 4 Lake Baringo, 23-26 Oct (TS), 7 Lake Nakuru, 28-29 Oct and 2 there 4 Dec (DJP, PPJ, DEGB). 1 Bahi swamp, Dodoma, 10 Nov (DKR), 1 Lake Ol Bolossat, 11 Dec (RDM).
As usual, records indicate a passage status for these inland birds, but spring occurrences are unusual.

Phalaropus lobatus Red-necked Phalarope S: 1 found freshly dead at Ras Iwetine, 1 Mar (HAB, PLB), about 50 beyond the reef at Diani, 4 Mar (MC, GM, SM; see also *Scopus* 3: 58).

Stercorarius sp. skua S: an immature at Kunduchi on 13 Dec was probably a Pomarine, *S. pomarinus* (SJT).
This is the first record of a skua for Tanzania.

Larus argentatus Herring Gull R: recorded regularly in the Malindi/Sabaki area up to 18 Apr (maximum 39 on 4 Feb) and from 18 Oct. 3 overwintering at Malindi 2 Jly (HAB, PLB, BSM, DJP).
Up to 16 at Ras Iwetine on various dates between 5 Feb and 2 Mar (HAB, PLB). 3 Ferguson's Gulf, 5 Sep (RDM), 1 Kisumu on 15 Dec (RDM).
Up to 6 regularly, Oct - Dec, Dar es Salaam (SJT).
This species continues to increase and, for the first time, usually outnumbered the Lesser Black-backed Gulls *L. fuscus*, at Malindi during winter.

Larus minutus Little Gull S: c. 60 just north of Loiyengalani, 7 Jan (GG; see *Scopus* 3: 26 for full details).
This is the first East African record.

Gelochelidon nilotica Gull-billed Tern N: about 600 coming in to roost at Lake Nakuru (western shore) on 28 Oct (DJP).

Sterna caspia Caspian Tern E: RECORD AWAY FROM LAKE TURKANA AND THE COAST: 1 Ewaso Nyiro swamp, 20 Oct (AB).

Sterna sandvicensis Sandwich Tern S: 2 Sabaki, 16 Feb (BSM) and 1 Malindi, 10 Mar (PLB, DJP).

- Cuculus poliocephalus* Lesser Cuckoo R: 1 Sokoke Forest, 4 Apr and 2 on 15 Apr (HAB, PLB, DJP).
- Otus scops* Scops Owl R: 1 caught and ringed at Ngulia Lodge, 27 Nov (GCB, DJP, PPJ).
- Caprimulgus europaeus* Eurasian Nightjar R: 1 Lake Baringo, 7 Nov (TS, DAT).
Common at Ngulia Lodge on most nights during mid-Nov. A total of 106 was ringed there between 14 Nov and 26 Dec, 42 of which were caught on 15 Nov (GCB, GN, PLB et al.).
- Irania gutturalis* Irania R: a record total of 271 was ringed at Ngulia Lodge between 14 Nov and 27 Dec, with a maximum catch of 42 on 13 Dec (GCB, DJP et al.).
NEWLY RECORDED WINTERING AREA: common, and found at several sites from Ololokwe, 50 km northwards, 17-18 Mar (DJP).
(Details of records from Isiolo and the usual wintering areas in southeast Kenya are not given.)
- Saxicola rubetra* Whinchat E: CENTRAL/EASTERN KENYA AND TANZANIA RECORDS: singles at Baringo on 28 Jan, 25 Feb and 25-28 Mar (DJP, TS).
1 Uyole, near Mbeya, 20 Nov (SJT).
- Acrocephalus arundinaceus* Great Reed Warbler E, D: 6 ringed at Ngulia, 18 Nov - 20 Dec (GCB, DJP et al.).
This is a scarce bird on autumn passage, especially in eastern Kenya.
- Acrocephalus griseldis* Basra Reed Warbler R, E: a record 76 were ringed at Ngulia Lodge, 15 Nov - 25 Dec (GCB, DJP et al.).
NEW WINTERING LOCALITY: abundant near the Tana River at Garsen and at Lake Bilisa, 11 Mar, with many in song (DJP).
- Acrocephalus palustris* Marsh Warbler D: early examples caught at Ngulia on 23 Oct and at Nairobi on 31 Oct (DJP).
- Hippolais icterina* Icterine Warbler R: 1 Kisumu, 12 Nov (DAT), 1 40 km north of Iringa, 3 Dec (RS).
- Hippolais olivetorum* Olive-tree Warbler S: 1 Lake Baringo, 9 Nov (TS). The only other records are from Ngulia where 72 were ringed at the Lodge between 14 and 27 Nov (maximum 21 on 24th) (GCB, GN, DJP et al.).
- Locustella fluviatilis* River Warbler R: 380 were ringed at Ngulia Lodge, 14 Nov - 27 Dec (maximum 105 on 26 Nov) (GCB, DJP et al.).
3 caught and ringed on the Chyulus after having been attracted by lights, 27 Nov (GN).
- Phylloscopus sibilatrix* Wood Warbler S: 1 in song in mangroves at Mida Creek, 10 Mar (DJP, PLB, MC).
1 Mara GR, 18 Nov (DAT).
- Lanius senator* Woodchat Shrike R: 1 Lake Baringo from 21 Dec to the end of the year (DH, TS).

ADDITIONS FOR PREVIOUS YEARS

PALAEARCTIC SPECIES

- Hieraetus pennatus* Booted Eagle: 1 Samburu GR, 8 Feb 1978 and 1 Tsavo West, 25 Feb 1978 (JVJ et al.).
- Pernis apivorus* Honey Buzzard: 1 between Gede and Malindi, 23 Aug 1978 (CFM),

Crex crex Corncrake: 1 found dead, Lake Diluti, near Arusha, Dec 1978 (KMH).

Limosa limosa Black-tailed Godwit: 4 Lake Nakuru, May 1978 (PBT).

Caprimulgus europaeus Eurasian Nightjar: 1978 RECORDS: 1 Soko Forest, 12 Apr (HAB, PLB).

At Ngulia Lodge, 21 were caught and ringed between 5 Nov and 1 Dec, but 15 of these were on 7 Nov (GCB, DJP et al.).

Lanius senator Woodchat Shrike: 1 Samburu GR, 7 Feb 1978 and 1 Hell's Gate, Naivasha, 12 Feb 1978 (JVJ et al.).

'FIRST' AND 'LAST' DATES OF PALAEARCTIC MIGRANTS

(central/eastern Kenya and Tanzania)

| Species | Last Date | First date |
|--|-------------------------------|----------------------|
| <i>Cuculus canorus</i> | 22 Apr Tsavo | 20 Oct Amboseli |
| <i>Caprimulgus europaeus</i> | - | 23 Oct Ngulia |
| <i>Merops apiaster</i> | 9 Apr Nairobi. | 17 Sep Nairobi |
| <i>M. persicus</i> | - | 4 Nov Athi River |
| <i>Coracias garrulus</i> | 14 Apr Mtito Andei. | 23 Oct Tsavo West NP |
| <i>Delichon urbica</i> | - | 14 Sep Limuru |
| <i>Riparia riparia</i> | - | 23 Sep Naivasha |
| <i>Oriolus oriolus</i> | 18 Apr Soko | 7 Oct Nairobi |
| <i>Cercotrichas galactotes</i> | - | 26 Oct Ngulia |
| <i>Irania gutturalis</i> | 24 Mar Mwingi Market. | 14 Nov Ngulia |
| <i>Luscinia luscinia</i> | 24 Mar Mwingi Market. | 23 Oct Ngulia |
| <i>L. megarhynchos</i> | 26 Mar Kiboko | 26 Oct Ngulia |
| <i>Monticola saxatilis</i> | - | 26 Oct Ngulia |
| <i>Oenanthe isabellina</i> | - | 7 Oct Nairobi |
| <i>O. oenanthe</i> | - | 15 Sep Kiambu |
| <i>O. pleschanka</i> | 24 Mar Mwingi Market. | 14 Oct Kariobangi |
| <i>Acrocephalus arundinaceus</i> | 7 Apr Kariobangi | 1 Nov Kariobangi |
| <i>A. griseldis</i> | - | 15 Nov Ngulia |
| <i>A. palustris</i> | 18 Apr Soko | 23 Oct Ngulia |
| <i>A. schoenobaenus</i> | 3 May Kariobangi | 1 Nov Kariobangi |
| <i>A. scirpaceus</i> | 6 May Bogoria. | 26 Oct Ngulia |
| <i>Hippolais languida</i> | - | 16 Nov Ngulia |
| <i>H. pallida</i> | 14 Apr Sultan Hamud | 15 Oct Athi River |
| <i>Locustella fluviatilis</i> | - | 14 Nov Ngulia |
| <i>Phylloscopus trochilus</i> | 3 May Nairobi. | 7 Oct Athi River |
| <i>Sylvia atricapilla</i> | 22 Mar Nairobi. | 28 Oct Kabete |
| <i>S. borin</i> | 30 Apr Kariobangi | 16 Oct Nairobi |
| <i>S. communis</i> | 24 Apr Kariobangi | 23 Oct Ngulia |
| <i>S. nisoria</i> | - | 26 Oct Ngulia |
| <i>Muscicapa striata</i> | 7 Apr Kariobangi | 9 Oct Nairobi |
| <i>Anthus cervinus</i> | 5 Apr Kariobangi | 26 Oct Naivasha |
| <i>A. trivialis</i> | 7 Apr Nairobi. | 26 Oct Kariobangi |
| <i>Motacilla alba</i> | 19 Feb Kariobangi | 30 Nov Kariobangi |
| <i>M. flava</i> | 30 Apr Kariobangi | 6 Sep Kariobangi |
| <i>Lanius collurio</i> | 5 May Arusha | 26 Oct Ngulia |
| <i>L. isabellinus</i> | 5 Apr Kariobangi | 23 Oct Ngulia |
| <i>L. minor</i> | 5 May Arusha | - |

English names are given overleaf.

English names of species not mentioned in the Species Reports:

Cuculus canorus Eurasian Cuckoo, *Merops apiaster* Eurasian Bee-eater, *M. persicus* Blue-cheeked Bee-eater, *Coracias garrulus* Eurasian Roller, *Delichon urbica* House Martin, *Riparia riparia* Sand Martin, *Oriolus oriolus* Golden Oriole, *Cercotrichas galactotes* Rufous Bush Chat, *Luscinia luscinia* Sprosser, *L. megarhynchos* Nightingale, *Monticola saxatilis* Rock Thrush, *Oenanthe isabellina* Isabelline Wheatear, *O. oenanthe* Northern Wheatear, *O. pleschanka* Pied Wheatear, *Acrocephalus schoenobaenus* Sedge Warbler, *A. scirpaceus* Reed Warbler, *Hippolais languida* Upcher's Warbler, *H. pallida* Olivaceous Warbler, *Phylloscopus trochilus* Willow Warbler, *Sylvia atricapilla* Blackcap, *S. borin* Garden Warbler, *S. communis* Whitethroat, *S. nisoria* Barred Warbler, *Muscicapa striata* Spotted Flycatcher, *Anthus cervinus* Red-throated Pipit, *A. trivialis* Tree Pipit, *Motacilla alba* White Wagtail, *M. flava* Yellow Wagtail, *Lanius collurio* Red-backed Shrike, *L. isabellinus* Red-tailed Shrike, *L. minor* Lesser Grey Shrike.

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- BRITTON, P.L. (ed.) 1980. *Birds of East Africa*. Nairobi: EAHNS.

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The Ethiopian section of the Species report was compiled by D.A. Turner, P.L. Britton and D.J. Pearson, the Palaearctics by B.S. Meadows and D.J. Pearson, and the 'first' and 'last' dates section by D.J. Pearson.

E.A.N.H.S. NEST RECORD SCHEME: 1979

Hazel A. Britton

As in previous years, most data received for 1979 refer to Kenya, though there has been an improved response from a small number of ornithologists resident in Tanzania. There are no contributions from Uganda.

Egg set data cards in the collection of the Western Foundation of Vertebrate Zoology, California, referred to in my last report (*Scopus* 2: 126), have now been analysed by species, but I have not after all included them here. A combined report prepared in MS form proved to be too cumbersome. Details of these eggs will appear instead as a separate paper in *Scopus* [4: 79-83].

The format here is the same as in earlier reports. Details given are minimal, and no attempt has been made to provide clutch-size, nest-site or success-rate data. Months given refer to actual egg-laying or to computed egg-laying dates from dependent young in or out of the nest. In situations where it has been impossible to reliably compute months of egg-laying, dates are given more fully along with the observations themselves. Various unpublished data from earlier years are included here, distinguished by including the year of the observation, while Tanzanian localities other than Dar es Salaam and Arusha are distinguished by using T in parentheses.

This report has been compiled from records provided by the following contributors, from cards received before 20 June 1980: H. Aden, P.M. Allen, M.T. Bamford, S.R. Bamlett, J.S.S. Beesley, D. Brass, H.A. & P.L. Britton, B.E., C.H. & L.H. Brown, F.N. Bruce-Miller, I. Bryceson, L. & T. Campbell, R.P. Chapman-Purchas, M.A.C. Coverdale, G.G. Cunningham-van Someren, P. Davey, M. Heath, M. Hemphill, D.M. Hodges, J.F.M. Horne, K.M. Howell, J.R. Hudson, G.C. & D. Irvine, M. Jackson, I. Johnson, A.D. Lewis, Y. Malcolm-Coe, J. Malloy, I. Marshall, T.C.H. Mathews, B.S. Meadows, N.H. Moore, R.D. Moore, D. Moyer, C. Muringo, F. Ng'weno, C.E. Norris, I.M. O'Keefe, D.J. Pearson, H. Pelchen, D.E. Pomeroy, J.F. Reynolds, D.K. Richards, K.W. Richmond, E.H. Risley, A. & J. Root, J.A. Rudnai, S. Sassoon, D. Schmidl, L.T. Schwab, P.A. Scott, D.M. Sheppard, L.L. Short, R. Stjernstedt, N.J. Skinner, C. Smeenk, S. & S. Stagg, D.A. Turner, R.F. Tyers, M. Vickery, A.E. Visagie, T. White, P.A. Wootton, T. Young.

Struthio camelus Ostrich: *massaicus*: Nairobi NP Sep (2). Amboseli NP 30 Jan (10 large chicks still in down); *somalicus*: Tsavo East NP 27 Jan (27 young over $\frac{1}{2}$ grown).

Podiceps cristatus Great Crested Grebe: Lake Nakuru NP Mar, Apr (4), May (7); Lake Solai Apr (4).

Tachybaptus ruficollis Little Grebe: near Mombasa Apr, Jun. Nairobi Mar. Lake Naivasha Jun. Lake Solai Jly. Near Arusha Nov. Lake Nakuru NP 3 Aug 1978 (incubating and feeding fully grown young).

Pelecanus onocrotalus White Pelican: near Dodoma (T) remains of a colony, eggs probably laid Mar - Jun.

Pelecanus rufescens Pink-backed Pelican: Lake Manyara NP (T) large young in nests Jun.

Phalacrocorax africanus Long-tailed Cormorant: Lake Naivasha Nov - Dec (30 pairs).

Phalacrocorax carbo Greater Cormorant: Lake Naivasha Oct (about 75 nests), Nov (20 nests). Lake Nakuru NP active colony 25-30 nests Sep; also Aug - Oct 1976.

Scopus 3: 121-131

Anhinga rufa Darter: Lake Naivasha Nov (10 nests).

Ardea goliath Goliath Heron: Lake Naivasha Jan. Lake Baringo Jun; also 23 Aug 1978 (two nests with nestlings and fully grown young not yet flying).

Ardea melanocephala Black-headed Heron: Tsavo East NP Nov - Dec (46+), Mar - Apr (13+). Hunter's Lodge, Kiboko 21 Jan (5 occupied nests). Near Arusha Mar - Nov (occupied colony, about 140 nests).

Ardeola ralloides Squacco Heron: Lake Solai 8 Jly (about 70 nests with eggs and young).

Bubulcus ibis Cattle Egret: Tsavo East NP Dec - Jan (10 nests).

Butorides striatus Green-backed Heron: near Ruiru Nov, Dec.

Egretta garzetta Little Egret: Lake Turkana Apr (7).

Egretta intermedia Yellow-billed Egret: Lake Solai 4 nests with eggs 8 Jly.

Anastomus lamelligerus Open-billed Stork: Tsavo East NP Nov.

Ephippiorhynchus senegalensis Saddle-billed Stork: near Shinyanga (T) 3 May (eggs).

Leptoptilos crumeniferus Marabou: Kibwezi 11 Aug (52 nests, some with small young). Kiboko 11 Aug (27 nests, some with small young).

Bostrychia hagedash Hadada: Lake Naivasha Nov. Nandi Hills Apr.

Platalea alba African Spoonbill: Lake Turkana Apr (10).

Phoeniconais minor Lesser Flamingo: Lake Natron (T) 9-12 Oct 1977 (enormous numbers of downy young estimated to have been from eggs laid Aug - Sep).

Dendrocygna viduata White-faced Whistling Duck: Malindi Jly. Busia Jun.

Alopochen aegyptiacus Egyptian Goose: Tsavo East NP Dec. Amboseli NP Nov - Dec (3). Nairobi NP/Athi River area Jun, Nov. Mara GR Dec. Aberdare NP Apr. Lake Nakuru NP Jan - Mar (4); also Jun (2), Jly, Nov 1976 and Feb, Apr, Oct 1977. Lake Bogoria Mar, May (2). Lake Turkana Apr. Samburu GR Sep.

Anas capensis Cape Wigeon: Lake Magadi 5 Aug (eggs).

Anas erythrorhynchos Red-billed Duck: Lake Naivasha Jly (2). Smart's Swamp (?), Jun (2), Jly. Thika young from eggs probably laid Dec 1978, Jun, Jly (2).

Anas undulata Yellow-billed Duck: Ruiru Dec 1978. Aberdare NP Jun. Smart's Swamp Dec 1978, Jun (2), Jly.

Oxyura maccoa Maccoa Duck: Arusha NP Nov. Smart's Swamp Jun.

Plectropterus gambensis Spur-winged Goose: Nairobi NP Jun.

Sarkidiornis melanotos Knob-billed Duck: near Voi young from eggs laid Dec 1978.

Gyps africanus African White-backed Vulture: Kibwezi 11 Aug ($\frac{1}{2}$ grown young in nest), 19 Sep (two nests, one with young $\frac{1}{2}$ grown and the other with nearly fledged juvenile). Meru NP Jan. Nairobi NP two nests with young from eggs laid Jan/Feb. Mara GR incubating 14 Jun.

Gyps rueppellii Rüppell's Vulture: Njorowa Gorge (Naivasha) incubating 4 Feb.

Neophron percnopterus Egyptian Vulture: Njorowa Gorge nests with sitting birds 4 Feb, 2 Mar (2).

Gypaetus barbatus Lammergeyer: Njorowa Gorge apparently incubating 15 Jly and 20 Aug.

- Terathopius ecaudatus* Bateleur: Tsavo East NP male at nest with full-grown chick 27 Oct. Lake Nakuru NP Mar 1977.
- Accipiter melanoleucus* Great Sparrowhawk: Shanzu Jly, Oct. Diani Forest Sep. Shimba Hills Aug. Near Nairobi Jan.
- Accipiter minullus* Little Sparrowhawk: north of Loiyengalani 20 Apr (3 young in nest).
- Accipiter tachiro* African Goshawk: near Nairobi adults feeding fledgling out of nest 28 Jan.
- Aquila rapax* Tawny Eagle: Amboseli NP 26 Sep (two white downy young). Machakos District May (2). Baringo District 29 Apr (apparently incubating). Nairobi NP young two-thirds grown 22 Jly 1978. Lake Nakuru NP feeding young in nest 18 Jly 1977.
- Aquila verreauxi* Verreaux's Eagle: Njorowa Gorge birds sitting on nests 2 Jun and 20 Aug. Lake Nakuru NP incubating 29 Aug 1977 (young seen on 12 Nov).
- Aquila wahlbergi* Wahlberg's Eagle: Tsavo East NP Sep - Oct (3); also apparently incubating Jly 1978. Tsavo West NP Sep. Tatanda (SW Tanzania) Sep.
- Buteo augur* Augur Buzzard: Lake Naivasha Mar. Njorowa Gorge Apr. Lake Nakuru NP adult on eggs 20 Sep 1976.
- Hieraaetus dubius* Ayres' Hawk Eagle: Kakamega Forest apparently large young in nest 18 Jan. Embu District Jly.
- Lophaelus occipitalis* Long-crested Eagle: Embu District occupied nest (young) 2 Sep. Lake Nakuru NP incubating Nov 1976.
- Polemaetus bellicosus* Martial Eagle: Tsavo East NP young from egg laid probably early Jly. Embu District Apr.
- Stephanoaetus coronatus* Crowned Eagle: Mt Meru (T) 6 Feb young from egg laid Sep 1978. Near Kibwezi incubating in Jun. Nyeri/Kiganjo area apparently incubating 18 Oct and full-grown chick on nest 6 Nov.
- Haliaeetus vocifer* Fish Eagle: Lake Naivasha Oct, Nov (2). Lake Baringo apparently incubating 14 Apr; also incubating Sep 1978. Near Mbeya (T) 25 Apr (eggs).
- Milvus migrans* Black Kite: Kiambu Jan, Sep.
- Chelictinia riocourii* Swallow-tailed Kite: Lake Turkana 14 Apr (3 nests, one egg and very small young).
- Falco biarmicus* Lanner Falcon: Njorowa Gorge birds at nests 2 Jun and 20 Aug. Lake Nakuru NP breeding in cave on cliffs 28 Sep 1977.
- Falco cuvieri* African Hobby: Naivasha (Crater Lake) fledged young just capable of very weak flight 25 Nov.
- Falco rupicoloides* White-eyed Kestrel: Narok Road (near satellite tracking station) female at nest 23 Jun.
- Falco tinnunculus* Kestrel: Arusha NP feeding young in hole 21 Oct.
- Polihierax semitorquatus* Pygmy Falcon: Kibwezi occupied nest 17 Aug.
- Coturnix delegorguei* Harlequin Quail: Tsavo East NP Dec (5), Jan (2).
- Francolinus coqui* Coqui Francolin: Sokoke Forest Apr. Lake Nakuru NP May, Jly - Aug (3) 1977.
- Francolinus hildebrandtii* Hildebrandt's Francolin: Lake Nakuru NP Nov, Dec 1976, Jly 1977.

Francolinus jacksoni Jackson's Francolin: Aberdare NP young from eggs laid Nov; also Nov - Dec 1978 (3).

Francolinus sephaena Crested Francolin: Tsavo East NP Dec - Jan (2). Samburu GR young from eggs probably laid late Dec 1978 (5).

Acryllium vulturinum Vulturine Guineafowl: Samburu GR young one third grown 12 Feb.

Guttera pucherani Kenya Crested Guineafowl: Soko Forest young one third grown 20 Apr.

Numida meleagris Helmeted Guineafowl: Lake Nakuru NP seven records of dependent young from eggs laid Apr - Aug 1977.

Turnix sylvatica Button Quail: Tsavo East NP Jan.

Balearica pavonina Crowned Crane: Amboseli NP small young in down 28 Jan. Lake Nakuru NP pair with chick about 3 d old 6 Sep 1976.

Gallinula chloropus Moorhen: Lake Naivasha Dec 1978, Apr, May. Aberdare NP Jun.

Limnecorax flavirostra Black Crake: Amboseli NP young from eggs laid probably early Nov. Lake Nakuru NP two thirds grown young 24 Jly 1977. Lake Naivasha Apr.

Porphyrio porphyrio Purple Gallinule: Lake Naivasha young from eggs laid Nov 1978. Lake Nakuru NP building in Jan.

Rallus caerulescens African Water Rail: Lake Naivasha 8 Jly (two young with adults).

Fulica cristata Red-knobbed Coot: Aberdare NP young from egg probably laid early Jun.

Actophilornis africanus Jacana: Lake Naivasha pair with $\frac{1}{2}$ grown young 24 Jly and a pair with young 26 Jly. Amboseli NP pair with young 6 May. Lake Jipe May. Near Mombasa late Jun or early Jly.

Charadrius pallidus Chestnut-banded Sandplover: Lake Magadi Jun - Jly (4). Near Dodoma (T) Aug - Sep (eggs and several juveniles seen).

Charadrius pecuarius Kittlitz's Sandplover: Lake Magadi Jun. Northwest of Dodoma (T) Jly. Lake Nakuru NP Jly 1976 (2).

Charadrius tricollaris Three-banded Plover: Lake Magadi Jun (2), Jly.

Vanellus armatus Blacksmith Plover: Amboseli NP Jly, Aug (2). Lake Magadi May, Jun. Lake Nakuru NP Jun; also Jly 1976, May, Jun (2), Jly 1977 and Jun 1978.

Vanellus coronatus Crowned Plover: Lake Turkana Apr. Mara GR young from egg laid late Nov 1978.

Vanellus melanopterus Black-winged Plover: Aberdare NP Mar.

Vanellus spinosus Spur-winged Plover: Samburu GR young from egg probably laid May. Lake Turkana Apr (4). Amboseli NP Jan 1978. Lower Tana River Jan, Aug 1978.

Cursorius temminckii Temminck's Courser: Mara GR young from eggs Nov 1978.

Rhinoptilus africanus Two-banded Courser: Serengeti NP (T) May 1971.

Glareola pratincola Common Pratincole: Lake Magadi Jun; also Mar 1977 (2). Northwest of Dodoma (T) Jly.

Larus cirrocephalus Grey-headed Gull: Lake Turkana Apr (colony of several thousand pairs).

- Chlidonias hybridus* Whiskered Tern: near Dodoma (T) feeding begging young Aug.
- Rhynchops flavirostris* African Skimmer: Rufiji River in the Selous GR (T) Aug. Lake Turkana 22 Apr (8 nests).
- Pterocles decoratus* Black-faced Sandgrouse: Lake Magadi May.
- Pterocles exustus* Chestnut-bellied Sandgrouse: near Lake Magadi Aug.
- Columba guinea* Speckled Pigeon: Lake Naivasha Mar, Oct. Lake Turkana Apr (2).
- Streptopelia capicola* Ring-necked Dove: Nandi Hills Jan. Lake Nakuru NP Sep 1976.
- Streptopelia semitorquata* Red-eyed Dove: Mida Creek Aug. Nairobi area Feb, Mar, Aug.
- Streptopelia senegalensis* Laughing Dove: Kibwezi May. Near Nairobi Dec, Jan, Feb. Lake Magadi May. Lake Turkana Apr. Dodoma (T) May. Lake Nakuru NP Aug 1976 and Feb 1977.
- Treron australis* Green Pigeon: Shimoni Oct. Kiambu Sep. Near Arusha Dec.
- Turtur chalcospilos* Emerald-spotted Wood Dove: Kerio Valley Apr. Kora (Tana River) Mar.
- Agapornis personata* Yellow-collared Lovebird: near Mombasa 28 Jun (two occupied nests).
- Corythaixoides leucogaster* White-bellied Go-away Bird: Kora Jan.
- Chrysococcyx caprius* Didric Cuckoo: Nairobi fledged young being fed by *Ploceus baglafaecht* 26 Mar. Lake Nakuru NP fledged young being fed by *P. baglafaecht* 18 Sep 1976.
- Chrysococcyx cupreus* Emerald Cuckoo: Nairobi fledged young being fed by *Ploceus baglafaecht* 11 Feb.
- Chrysococcyx klaas* Klaas' Cuckoo: Nairobi fledged young being fed by *Pycnonotus barbatus* 14 Apr, fledged young being fed by *Nectarinia kilimensis* 21 Nov. Lake Nakuru NP fledged young being fed by *Nectarinia venusta* 4 Aug 1977. Uluguru Mts (T) young from egg laid Sep 1952 in nest of *Platysteira peltata*.
- Cuculus solitarius* Red-chested Cuckoo: Kiambu Apr (host *Cossypha caffra*). Nairobi fledged young being fed by *Melaenornis chocolatina* on 21 Apr.
- Bubo africanus* Spotted Eagle Owl: Dar es Salaam Sep 1978, site used again in 1979 (no details).
- Bubo lacteus* Verreaux's Eagle Owl: Meru NP 5 Jan (fledged young with adults, head still downy). Near Arusha 3 Nov (fledged young being fed by adults). Lake Nakuru NP incubating 24 Nov 1976.
- Caprimulgus clarus* Slender-tailed Nightjar: near Mombasa Mar (2).
- Caprimulgus fraenatus* Dusky Nightjar: Arusha NP Nov.
- Caprimulgus poliocephalus* Montane Nightjar: near Nairobi Sep (3), Nov.
- Apus affinis* Little Swift: Tsavo East NP (Voi Gate) and Taita Hills Lodge 1 Jly (young being fed in nests). Dar es Salaam Jun and Oct - Nov.
- Apus caffer* White-rumped Swift: Mara GR (Keekerok Lodge) apparently feeding young in nest 25 May.
- Apus horus* Horus Swift: Njorowa Gorge 20 Jun apparently feeding young. Lake Nakuru NP active colony Jul - Oct 1976 and Apr - May and Oct 1977 (feeding young in May).

- Apus niansae* Nyanza Swift: Nakuru active colony, some nests with young Jun.
- Cypsiurus parvus* Palm Swift: south Kenya coast young from eggs probably laid Sep.
- Colius striatus* Speckled Mousebird: Nairobi area late Feb, Sep (4). Kerio Valley Apr. Dodoma (T) May.
- Urocolius macrourus* Blue-naped Mousebird: Lake Baringo Apr.
- Alcedo cristata* Malachite Kingfisher: Nairobi NP young from egg laid Oct/Nov. Lake Nakuru NP Sep 1976.
- Halcyon albiventris* Brown-hooded Kingfisher: Dar es Salaam, young left nest hole 13 Dec.
- Halcyon chelicuti* Striped Kingfisher: Mara GR area occupied holes 11 Apr and 25 May (probably feeding young). Lake Nakuru NP Jly, Aug, Oct 1976 and feeding young of *Indicator indicator* in holes, end Oct, mid 1976 and 20 Oct 1977.
- Halcyon leucocephala* Chestnut-bellied Kingfisher: Lake Nakuru NP pair feeding nearly fledged young 23 Apr 1977.
- Merops bullockoides* White-fronted Bee-eater: Kerio River active colony, feeding young and digging holes on 14 Apr. Arusha NP colonies extending along Ngare Nanyuki River feeding young 21 Oct. Lake Nakuru NP at least 6 pairs feeding young 12 Dec 1976.
- Merops oreobates* Cinnamon-breasted Bee-eater: Nairobi feeding young 25 Apr. Mara GR feeding fledged young 4 Jan. Arusha NP feeding young 10 Dec.
- Coracias caudata* Lilac-breasted Roller: Kibwezi feeding young in hole 10-30 May. Lake Nakuru NP feeding fledged young 15 Jan. South Kenya coast feeding fledged young 7 Aug 1978.
- Eurystomus glaucurus* Broad-billed Roller: Kibwezi feeding young in hole 5 Dec. Shimoni feeding just-fledged young 30 Dec. Near Arusha feeding young 10 Nov.
- Phoeniculus bollei* White-headed Wood Hoopoe: Lake Nakuru NP feeding young in hole 13 May.
- Phoeniculus granti* Violet Wood Hoopoe: Kibwezi apparently incubating 16 Jun.
- Phoeniculus purpureus* Green Wood Hoopoe: Kibwezi feeding fledged young on 23 May and young in hole 29 May. Lake Nakuru NP adults feeding fledged young 8 Aug, 20 Oct and 12 Nov 1977.
- Upupa epops* Hoopoe: Amboseli NP 25 Sep occupied hole, probably incubating. Lake Nakuru NP Sep, Dec 1976, Feb (2), Aug, Nov 1977 and incubating egg of *Indicator indicator* Mar 1977.
- Tockus alboterminatus* Crowned Hornbill: Diani Forest feeding young in hole 2-23 Oct (same hole used in 1978).
- Tockus deckeni* Von der Decken's Hornbill: Kibwezi feeding fledged young 13 May.
- Tockus erythrorhynchus* Red-billed Hornbill: Samburu GR apparently incubating 13 Feb.
- Tockus nasutus* Grey Hornbill: Lake Nakuru NP young two thirds grown 16 May 1977.
- Bucorvus cafer* Ground Hornbill: Lake Nakuru NP building 18 Jly, fledged young seen 12 Nov 1977.
- Buccanodon duchaillui* Yellow-spotted Barbet: Kakamega Forest feeding young in hole 29 Jan.

Lybius diadematus Red-fronted Barbet: Lake Nakuru NP feeding young in holes 25 Jly 1976, 17 Mar, 19 Mar and 23 Aug 1977.

Lybius leucocephalus White-headed Barbet: Kiambu Oct.

Lybius leucotis White-eared Barbet: near Arusha feeding young in nest holes 30 Sep, 12 Oct, 28 Oct and 2 Dec.

Lybius melanocephalus Black-throated Barbet: Magadi feeding small young 24 Mar.

Trachyphonus erythrocephalus Red and Yellow Barbet: Kerio Valley feeding young in hole 8 Apr. Lake Magadi small young in hole 1 Jun. Ngulia feeding young in hole 12 Sep 1972.

Indicator indicator Black-throated Honeyguide: Lake Nakuru NP *Halcyon chelicuti* feeding young in holes end of Oct and mid Nov 1976 and 5 d old young 20 Oct 1977; *Upupa epops* incubating 21 Mar 1977; *Myrmecocichla aethiops* feeding nearly fledged young in hole 25 May 1977.

Jynx ruficollis Red-throated Wryneck: Kiambu Dec.

Dendropicos fuscescens Cardinal Woodpecker: Lake Nakuru NP Oct 1976.

Mesopicos goertae Grey Woodpecker: Kiambu Feb, Jun (same hole).

Thripias namaquus Bearded Woodpecker: Sokoke Forest incubating 3 Jly. Lake Nakuru NP feeding young in hole 11 Jan and 25 Feb 1977.

Eremopterix leucopareia Fischer's Sparrow Lark: Lake Magadi Apr.

Galerida malabarica Short-crested Lark: Lake Turkana Apr.

Hirundo abyssinica Striped Swallow: Utete (T) Jly (2). Near Nairobi Apr, May, Jun.

Hirundo angolensis Angola Swallow: Lake Nakuru NP colony of 10 pairs laid Apr, holes flooded in May and relaid in Jun 1977.

Hirundo fuligula African Rock Martin: near Nairobi Apr, Jun. Naivasha Sep. Lake Nakuru NP Apr 1977.

Hirundo smithii Wire-tailed Swallow: Samburu GR Jun.

Psaldoprocne pristopectera Black Rough-wing: near Nairobi Mar.

Riparia paludicola African Sand Martin: Lake Nakuru NP May 1977.

Dicrurus adsimilis Drongo: south Kenya coast Apr. Kibwezi Apr (2). Lake Nakuru NP Feb, Mar, May (2) 1977.

Oriolus larvatus Black-headed Oriole: Nairobi Mar.

Corvus albicollis White-necked Raven: Njorowa Gorge 20 Aug occupied nest, probably feeding young.

Corvus albus Pied Crow: Moudya Is. [north of Dar es Salaam] occupied nest 22 Sep.

Corvus ruficollis Brown-necked Raven: Lake Turkana Apr.

Corvus splendens Indian House Crow: Mombasa Sep, Nov (20+).

Parus albiventris White-bellied Tit: near Nairobi Jun.

Turdoides melanops Black-lored Babbler: Lake Naivasha May, Oct.

Pycnonotus barbatus Common Bulbul: Nairobi area Jan, Mar and feeding juvenile *Chrysococcyx kilaas* 14 Apr. Thika Sep. Kerio Valley Mar. Dar es Salaam Nov.

- Cercomela sordida* Alpine Chat: Mt Kenya Mar and building Oct.
- Cercotrichas leucophrys* White-browed Scrub Robin: Kibwezi Apr.
- Cichladusa guttata* Spotted Morning Thrush: Lake Baringo Jun.
- Cossypha caffra* Robin Chat: Nairobi area Apr (2), Jun, Jly, Oct (2).
- Cossypha heuglini* White-browed Robin Chat: Lake Nakuru NP Apr (3) 1977.
- Cossypha semirufa* Rüppell's Robin Chat: Nairobi area Feb, Apr, Nov.
- Myrmecocichla aethiops* Anteater Chat: Lake Nakuru NP Nov; also 1977 pair feeding young in nest Apr, feeding fledged young 10 Jun and feeding nearly fledged *Indicator indicator* in hole 25 May.
- Thamnolaea cinnamomeiventris* Cliff Chat: Lake Nakuru NP nest building 30 Jan, feeding fledged young 19 Mar 1977 (different pairs).
- Turdus abyssinicus* Northern Olive Thrush: Nairobi area Feb (2), Apr (2), Aug (3), Oct, Nov.
- Apalis flavida* Yellow-breasted Apalis: Magadi Road building 1 Jan.
- Camaroptera simplex* Grey Wren Warbler: Kibwezi just-fledged young being fed by adult 22 May.
- Cisticola chiniana* Rattling Cisticola: Lake Nakuru NP Jan 1977.
- Cisticola cinereola* Ashy Cisticola: Olorgesailie Apr.
- Cisticola robusta* Stout Cisticola: Nairobi area Mar (2), Apr (3).
- Cisticola tinniens* Tinkling Cisticola: Eldoret Jly.
- Eminia lepida* Grey-capped Warbler: Nairobi area Apr, Dec.
- Eremomela icteropygialis* Yellow-bellied Eremomela: Olorgesailie Feb.
- Prinia subflava* Tawny-flanked Prinia: near Nairobi Apr. Lower Tana River young from eggs Dec 1978. Lake Nakuru NP May 1977.
- Spenoeacus mentalis* Moustached Warbler: Kiambu dependent young on 30 Dec.
- Bradornis microrhynchus* Grey Flycatcher: Athi River Feb. Lake Nakuru NP Feb 1977.
- Bradornis pallidus* Pale Flycatcher: Kajiado District Nov. Dodoma (T) Apr.
- Melaenornis chocolatina* White-eyed Slaty Flycatcher: Nairobi area Feb, Apr (2), Oct. North Nandi Forest Nov. Uluguru Mts (T) Dec. Arusha Nov. Lake Nakuru NP Mar (2) and Jun 1977.
- Melaenornis pammellina* Southern Black Flycatcher: Samburu GR Dec 1978.
- Muscicapa adusta* Dusky Flycatcher: Nairobi Mar. Arusha NP two pairs building Dec 1978.
- Muscicapa caerulescens* Ashy Flycatcher: south Kenya coast Apr.
- Batis molitor* Chin-spot Batis: Kibwezi Nov.
- Batis soror* East Coast Batis: Sokoike Forest Jan.
- Platysteira blissetti* Jameson's Wattle-eye: North Nandi Forest Nov.
- Platysteira concreta* Yellow-bellied Wattle-eye: North Nandi Forest Nov.
- Platysteira cyanea* Wattle-eye: Busia Jun (2).
- Platysteira peltata* Black-throated Wattle-eye: Uluguru Mts (T) feeding young

- Chrysococcyx klaas* in nest from egg laid Sep 1952.
- Terpsiphone viridis* Paradise Flycatcher: Nairobi area Jan (2), Feb, Mar (2), Dec. Lake Baringo Apr. Near Arusha Nov, Dec.
- Anthus novaeseelandiae* Richard's Pipit: near Mombasa May.
- Macronyx croceus* Yellow-throated Longclaw: near Nairobi young from eggs laid probably late Dec 1978. Mara GR building Jan and Feb.
- Motacilla aguimp* African Pied Wagtail: Nairobi Oct. Samburu GR Jun. Nandi Hills feeding young out of nest 5 Aug.
- Motacilla clara* Mountain Wagtail: Usa River (T) Dec. Lake Nakuru NP Jun 1977.
- Dryoscopus cubla* Black-backed Puffback: Kibwezi Apr. Nairobi Jly; also Jly 1978.
- Laniarius ferrugineus* Tropical Boubou: Lake Nakuru NP Jun.
- Malaconotus dohertyi* Doherty's Bush Shrike: Aberdare NP dependent young with adult 10 Jly.
- Tchagra australis* Brown-headed Tchagra: Lake Nakuru NP Apr 1977.
- Lanius collaris* Fiscal: Nairobi area Jan, Mar, Apr (2), Oct; also Nov 1978. Lake Nakuru NP Jan; also Mar (2) and May 1977 and May 1978.
- Lanius excubitorius* Grey-backed Fiscal: Lake Nakuru NP feeding fledged young 10 Jun 1977.
- Eurocephalus rueppellii* White-crowned Shrike: Kibwezi Apr.
- Prionops plumata* Helmet Shrike: Kibwezi Apr.
- Prionops retzii* Retz'a Helmet Shrike: Sokoke Forest Mar.
- Prionops scopifrons* Chestnut-fronted Helmet Shrike: Sokoke Forest Mar.
- Cosmopsarus regius* Golden-breasted Starling: Kibwezi young from eggs probably laid late Mar.
- Lamprotornis chalybaeus* Blue-eared Glossy Starling: Kiambu young from eggs probably laid Dec. Lake Nakuru NP Apr 1977.
- Lamprotornis corruscus* Black-breasted Glossy Starling: Shimoni young in hole 30 Dec.
- Lamprotornis purpuropterus* Rüppell's Long-tailed Glossy Starling: Kerio Valley Mar (2).
- Onychognathus morio* Red-winged Starling: near Arusha Oct.
- Onychognathus salvadorii* Bristle-crowned Starling: Lake Baringo Jun.
- Onychognathus tenuirostris* Slender-billed Chestnut-winged Starling: Aberdare NP Dec.
- Spreo superbus* Superb Starling: Kibwezi Apr. Nairobi area Mar, Oct, Nov. Naivasha Sep. Lake Nakuru NP Jan, Oct and young from eggs laid Dec 1978; also feeding fledged young 1 Jan and eggs Apr 1977.
- Buphagus erythrorhynchus* Red-billed Oxpecker: Lake Nakuru NP feeding just-fledged young 17 Feb 1977.
- Anthreptes collaris* Collared Sunbird: Kenya coast Mar, Aug (3), Nov (2). Nairobi area Mar (3), Jly, Sep. Thika Oct. Near Arusha Nov. Lake Nakuru NP Apr 1977.

- Anthreptes rectirostris* Green Sunbird: Kakamega Forest building 6 Aug 1978.
- Nectarinia amethystina* Amethyst Sunbird: Nairobi Mar (2). Naro Moru Dec.
- Nectarinia hunteri* Hunter's Sunbird: Lake Baringo Jun.
- Nectarinia kilimensis* Bronze Sunbird: Nairobi area Jan (2), Feb, Mar, Apr (2), May, Jun, Jly, Aug, Oct, Dec, and feeding fledgling *Chrysococcyx klaas* 21 Nov. Naro Moru Aug.
- Nectarinia mediocris* Eastern Double-collared Sunbird: near Nairobi Feb, Apr.
- Nectarinia olivacea* Olive Sunbird: Kenya coast Feb, May (2).
- Nectarinia pulchella* Beautiful Sunbird: Kerio Valley Apr (another pair building).
- Nectarinia senegalensis* Scarlet-chested Sunbird: Lake Nakuru Oct.
- Nectarinia venusta* Variable Sunbird: Nairobi area Mar, Apr (2), Sep.
- Zosterops polioogastra* Montane White-eye: near Nairobi Jan, Apr.
- Zosterops senegalensis* Yellow White-eye: near Kitale Nov.
- Euplectes hordeaceus* Black-winged Red Bishop: Kerio Valley Apr.
- Euplectes nigroventris* Zanzibar Red Bishop: Dar es Salaam May (2) 1975.
- Euplectes progne* Long-tailed Widowbird: Kamae (north of Limuru) Mar.
- Ploceus baglafaecht* Baglafaecht Weaver: Nairobi area Jan, Mar, May, Sep (2), Oct (2), and feeding fledged young *Chrysococcyx caprius* 26 Mar. Lake Nakuru NP Jun; also feeding fledged young *C. caprius* 18 Sep 1976 and Feb 1977.
- Ploceus bojeri* Golden Palm Weaver: near Mombasa Oct.
- Ploceus cucullatus* Black-headed Weaver: near Nairobi colony of 60+ nests eggs laid mainly Oct.
- Ploceus intermedius* Masked Weaver: near Olorgesailie c.20 nests possible first laying Feb, another colony of c.20 occupied nests Mar.
- Ploceus ocularis* Spectacled Weaver: Nairobi May. Naro Moru occupied nest 3 Aug. Mountain Lodge (Mt Kenya) occupied nest 8 Dec. Uluguru Mts (T) occupied nest Dec. Dar es Salaam Oct 1977.
- Ploceus spekei* Speke's Weaver: Nairobi area several small colonies with eggs and young Jan - Feb, fledged young being fed 10 Nov and feeding young in large colony 10 Dec. Narok occupied colony 3 Jun.
- Ploceus subaureus* Golden Weaver: Dar es Salaam occupied nests Oct 1975.
- Ploceus taeniopterus* Northern Masked Weaver: Lake Baringo 16 Jun building.
- Ploceus velatus* Vitelline Masked Weaver: west of Ngong Hills Feb - Mar (single nest and colony of 19 nests some occupied others still building).
- Ploceus xanthops* Holub's Golden Weaver: near Nairobi May, Oct.
- Plocepasser mahali* White-browed Sparrow Weaver: Lake Baringo and Lake Bogoria active colonies in May - Jun. Solai building 22 Oct.
- Pseudonigrita arnaudi* Grey-headed Social Weaver: Mara GR adults with fledged young 3 Jun.
- Pseudonigrita cabanisi* Black-capped Social Weaver: Tsavo West NP two colonies of c.25 nests 30 Jun (adults lining nests with feathers).
- Passer griseus* Grey-headed Sparrow: Nairobi area Feb, Apr, Oct - Dec (3). Busia feeding young in hole 18 Jly.

Passer motitensis Rufous Sparrow: Nairobi area Feb, Mar, Apr, Jun, Oct, Nov.
Kijabe Feb. Naro Moru occupied nest 28 Aug. Lake Nakuru NP Apr 1977.

Hypochera chalybeata Red-billed Firefinch Indigobird: Nairobi fledgling being fed by female *Lagonosticta senegala* 27 Apr.

Lagonosticta senegala Red-billed Firefinch: Nairobi Mar, and feeding young *Hypochera chalybeata* 27 Apr.

Pytilia melba Green-winged Pytilia: Olorgesailie Feb.

Uraeginthus bengalus Red-cheeked Cordon-bleu: Kerio Valley Apr.

Lonchura cucullata Bronze Mannikin: Nairobi Jan (3). Nandi Hills Aug 1978.
Dar es Salaam Jun 1975.

Serinus burtoni Thick-billed Seed-eater: North Nandi Forest feeding fledged young 3 Dec 1978.

Serinus citrinelloides African Citril: Kiambu Dec.

Serinus striolatus Streaky Seed-eater: Nairobi area Apr (2), Jun.

BIRD RINGING 1979

G.C. Backhurst

Ringling continued in all three East African countries, and in the Sudan, although very little was done in Uganda. In the ringling year July 1979 to June 1980 almost 26 000 birds were ringed, the highest total since ringling started in 1960. Of this total, 19 772 were Palaearctic migrants.

The pattern of ringling was much the same as in 1978 and a report covering the last three years will be published in the Society's *Journal* soon.

EAST AFRICAN ORNITHOLOGICAL STUDIES IN 1979

The following studies on birds, being undertaken in 1979, were made known to the Ornithological Sub-Committee. The studies are listed in no particular order and the list was compiled by D.A. Turner.

1. Vocalizations of barbets and woodpeckers. Dr L.L. Short and J.F.M. Horne.
2. Co-operative breeding in White-fronted Bee-eaters. Dr S.T. Emlen and team.
3. Feeding ecology of wood hoopoes. Dr J.D. Ligon and S.H. Ligon.
4. Ecology and behaviour of the Pied Kingfisher. Dr H.-U. Reyer.
5. Comparison of bird densities of tropical woods and forest. Prof. H. Oelke.
6. Birds of semi-arid areas. Prof. D.E. Pomeroy.
7. Behaviour and ecology of Ostriches in Tsavo NP. Dr B. Bertram.
8. Joint Vienna Museum and National Museums of Kenya expedition to the North Nandi Forest, western Kenya, for collection of birds and small mammals.
9. Filming the courtship and breeding behaviour of the parasitic whydahs of Kenya. Prof. J. Nicolai and Dr R. Lammers.

10. Studies of the Fiscal Shrike and Grey-backed Fiscal in the Naivasha area. S. Zack.
11. Study of birds of prey in the Embu area. Cambridge University students supervised by Dr J. Hudson.
12. Status and distribution of coastal shorebirds. P.L. & H.A. Britton and Dr D.J. Pearson.
13. Status, seasonality and distribution of Palaearctic migrants in southern and eastern Kenya. Dr D.J. Pearson.
14. Oxford University Expedition to Tanzania 1979. Ms Tessa van der Willigen (leader), H.R.C. Holland and S.N. Stuart. Investigations into the status of the endangered birds and the associated avifauna of the Tanganyika-Nyasa montane forest group, and assessment of the current status of, and pressures on, the natural forests. Mapping the remaining Usambara forests. Report published.
15. January ranges and abundance of Palaearctic waterfowl. B.S. Meadows (Organizer) in co-operation with the International Wildfowl Research Bureau.
16. The Ngulia Ringing scheme.
17. The E.A.N.H.S. Nest Record Scheme. Hazel A. Britton, Organizer.
18. The E.A.N.H.S. Bird Ringing Scheme. G.C. Backhurst, Organizer.

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List of exchanges with *Scopus*

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